US Army Corps of Engineers®
Los Angeles District

Prado Basin Ecosystem Restoration and Water Conservation Study

APPENDIX H

Air Quality

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AIR QUALITY AND GREENHOUSE GAS EMISSIONS IMPACT ANALYSIS

PRADO BASIN FEASIBILITY PROJECT

ORANGE COUNTY WATER DISTRICT

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PROJECT NO. 17018

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ACRONYMS AND ABBREVIATIONS

Air Basin	South Coast Air Basin
AQMP	Air Quality Management Plan
CAAQS	California Ambient Air Quality Standards
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCAA	California Clean Air Act
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DPM	Diesel particulate matter
EPA	Environmental Protection Agency
ºF	Fahrenheit
GHG	Greenhouse gas
GWP	Global warming potential
HFCs	Hydrofluorocarbons
IPCC	International Panel on Climate Change
LST	Localized Significant Thresholds
MSAT	Mobile Source Air Toxics
$MTCO_2e$	Metric tons of carbon dioxide equivalent
$MMTCO_2e$	Million metric tons of carbon dioxide equivalent
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NO_x	Nitrogen oxides
NO_2	Nitrogen dioxide
OCWD	Orange County Water District
O_3	Ozone
PM	Particle matter
PM10	Particles that are less than 10 micrometers in diameter
PM2.5	Particles that are less than 2.5 micrometers in diameter
PPM	Parts per million

PPB	Parts per billion
PPT	Parts per trillion
RTIP	Regional Transportation Improvement Plan
SAR	Santa Ana River
SARM	Santa Ana River Mainstream
SCAQMD	South Coast Air Quality Management District
SIP	State Implementation Plan
SO_x	Sulfur oxides
TAC	Toxic air contaminants
UNFCCC	United Nations' Framework Convention on Climate Change
VOC	Volatile organic compounds

1.0 INTRODUCTION

1.1 Purpose of Analysis and Study Objectives

This Air Quality and Greenhouse Gas Emissions Impact Analysis has been completed to determine the air quality and greenhouse gas (GHG) emissions impacts associated with the proposed Prado Basin Feasibility Report (proposed project). The following is provided in this report:

- A description of the proposed project;
- A description of the atmospheric setting;
- A description of the criteria pollutants and GHGs;
- A description of the air quality regulatory framework;
- A description of the air quality and GHG emissions thresholds including the California Environmental Quality Act (CEQA) significance thresholds and the National Environmental Policy Act (NEPA) General Conformity *de minimis* levels.;
- An analysis of Alternatives 2, 3, 4, and 5 air quality and GHG emissions impacts;
- An analysis of the conformity of the proposed project with the South Coast Air Quality Management District (SCAQMD) Air Quality Management Plan (AQMP); and
- An analysis of the conformity of the proposed project with all applicable GHG emissions reduction plans and policies.

1.2 Proposed Project Locations (Focal Areas)

The proposed project is located along the segments of the Santa Ana River. The primary focal areas are on the upstream reach within the Prado Basin reservoir area in Orange County. With an additional focal area along the Santa Ana River Lower Downstream Reach below the Prado Basin Dam and at the Santa Ana River Ocean Outlet Reach east of the Pacific Ocean. Figure 1 shows the project vicinity map and Figure 2 shows the Focal Areas that are described below.

- Santa Ana River Mainstream - Upstream (SARM Upstream) – east of Prado Dam, north of SR-91 Freeway
- Chino Creek – north of Prado Dam, east of SR-71 Freeway
- Mill Creek – north of Prado Dam, east of Chino Creek
- Santa Ana River Mainstream - Downstream (SARM Downstream) – west of Prado Dam, north of SR-91 Freeway

1.3 Project Description

The Prado Basin Feasibility Study proposed a combination of ecosystem restoration measures at four Focal Areas within Prado Basin referred to as Santa Ana River Mainstream-Upstream Focal Area (SARM Upstream), Santa Ana River Mainstream-Downstream Focal Area (SARM Downstream), Chino Creek Focal Area, and the Mill Creek Focal Area. As shown on Figure 1, the Prado Basin reservoir and dam are located on the Santa Ana River (SAR) within the Corona area of the County of Riverside (north of SR-91 between SR-71 and I-15 Freeways).

The proposed ecosystem restoration measures include: Water Conservation, Sediment Management, Chino Creek Channel Restoration Improvements, Invasive Plant Management, Native Plantings, Riparian

Edge Treatment, In-Stream Habitat Features, and Non-Native Wildlife Management. A brief description of each restoration measure is included below:

Water Conservation

The water conservation measures would occur in the SARM Upstream focal area and would include the following amendments to the current Prado Dam Water Control Plan:

- Increase in the water surface elevation of the Prado Dam buffer pool during the flood season (October 1 to February 28) from 498 feet up to 505 feet
- Permanent reduction of the average outflow release rate from the Prado Dam between March 1 and August 30 from 500 cfs to 350 cfs to maximize groundwater recharge potential

Sediment Management

The sediment removal activities would occur in the SARM Upstream and Downstream focal areas. The sediment removal program involves the following key activities:

- Construction of sediment trap, transition channel and sediment processing/storage yard
- Sediment removal from basin by dry excavation/hydraulic dredging
- Sediment deposal by trucking material from processing yard to landfill
- Sediment deposal by re-entrainment from yard by slurry pipeline to the Prado Dam outlet at times of sufficient flow.

Chino Creek Channel Restoration

The Chino Creek channel restoration measure would be implemented at the Chino Creek focal area. The Chino Creek Channel Restoration measure involves the following key activities:

- Construction of a diversion pipe, grade control structure, bio-engineered invert stabilizer, concrete stream crossing, perimeter berms, new channel excavation and site grading
- Re-routing flow from Chino Creek through a new shallow channel along the west side of Chino Creek between Euclid Avenue and Pine Avenue

The proposed shallow channel would promote riparian habitat growth over areas that currently do not receive enough water to support riparian habitat. A portion of Chino Creek would be filled in order to force water into the new shallow channel. The Chino Creek channel restoration measure would have an overall construction footprint of 170 acres.

Invasive Plant Management

The invasive plant management measures would be implemented at the SARM Upstream and Downstream, Chino Creek, and Mill Creek focal areas. The invasive plant management measures would be staggered over the first five years of implementation and would involve:

- Herbicide application and removal of the initial biomass of invasive plant species from the project focal areas
- Planting and management of native vegetation

Once the initial biomass has been removed, regular inspection and maintenance of the focal area would be required for the 50 year life of the project to ensure invasive plant species do not reestablish within the area.

Native Plantings

The native planting measures would be implemented in the SARM Upstream, Chino Creek, and Mill Creek focal areas. The native planting measures involve the following key activities:

- Removal of invasive plants required prior to revegetation with native plants
- Site preparation including minor grading and minimal weed management
- Seeding, pole staking, and planting of nursery-grown plants in areas that have reduced vegetative cover and/or have been disturbed by construction activities

Riparian Edge Management

The riparian edge management measures would be implemented in the SARM Upstream focal area around the perimeters of all of the sediment management features. The riparian edge management measure involve the following key activities:

- Plant removal, cleaning/grubbing, and rough grading activities along sediment management features
- Native plantings, vegetation trimming, and vegetation maintenance to maintain thriving riparian habitat and buffer for more interior habitats against road effects

In-Stream Habitat Features

The in-stream habitat features would be implemented in the SARM Upstream and Downstream focal areas to enhance habitat for native fish. The in-stream habitat features program involves adaptive management monitoring of invert grade, channel depth, sediment aggradation and scour to help determine the necessity of periodic repair to the in-stream features.

Non-Native Wildlife Management

Non-native wildlife management would be implemented in the SARM Upstream and Downstream, Chino Creek, and Mill Creek focal areas. The non-native wildlife management program would include:

- Non-Native Aquatic Species Management to control and/or remove invasive aquatic species
- Cow Bird Trapping to control for this non-native avian species
- Feral Pig Management for the control of feral pigs through trapping, telemetry and other population control techniques

Project Construction Timing

The sediment removal mechanisms and habitat restoration measures would be implemented beginning in year 2021 and extend 50 years through 2071. Initial implementation of the proposed measures would take approximately 5 years with regular operation and periodic maintenance occurring for 45 years thereafter.

Project Alternatives

Each of the project alternatives includes a mix of Water Conservation, Sediment Management, Chino Creek Channel Restoration Improvements, Invasive Plant Management, Native Plantings, Riparian Edge Treatment, In-Stream Habitat Features, and Non-Native Wildlife Management with the proposed project's four focal areas. The project alternatives that have been advanced for further review include:

- Alternative 1 – No Project (No Federal Action)
- Alternative 2 – Plan 11 (Proposed Action)

- Alternative 3 – Plan 9
- Alternative 4 – Plan 14

A more detailed description of the project alternatives is provided below.

Alternative 1 – No Project (No Federal Action)

The No Project Alternative provides the basis for comparison with other alternatives, as it represents a condition for both the current and future under which there would be no ecosystem restoration activities within any of the project area Focal Areas. Prado Dam would continue to accumulate incoming sediment reducing water conservation storage capacity and would continue the degradation of habitat within Prado Basin.

Alternative 2 – Plan 11 (Proposed Action)

The mix of ecosystem restoration measures proposed under the Proposed Action Alternative are listed in Table A below.

Table A – Alternative 2 Plan 11 (Proposed Action) Ecosystem Restoration Measures

SARM Upstream Focal Area	SARM Downstream Focal Area	Chino Creek Focal Area	Mill Creek Focal Area
Water Conservation	Invasive Plan Management	Chino Creek Channel Restoration	Invasive Plant Management
Sediment Management	Sediment Management	Invasive Plant Management	Native Plantings
Invasive Plant Management	In-Stream Habitat Features	Native Plantings	Cowbird Trapping
Native Plantings		Cowbird Trappings	
Riparian Edge Management			
Cowbird Trapping			
Non-Native Aquatic Management			

Source: OCWD

Alternative 3 – Plan 9

The mix of ecosystem restoration measures proposed under the Alternative 3 Plan 9 are listed in Table B below.

Table B – Alternative 3 Plan 9 Ecosystem Restoration Measures

SARM Upstream Focal Area	SARM Downstream Focal Area	Chino Creek Focal Area	Mill Creek Focal Area
Water Conservation with Incidental Sediment Removal	Invasive Plan Management	Chino Creek Channel Restoration	Invasive Plant Management
Invasive Plant Management		Invasive Plant Management	Native Plantings
Native Plantings		Native Plantings	Cowbird Trapping
		Cowbird Trappings	

Source: OCWD.

Alternative 4 – Plan 14

The mix of ecosystem restoration measures proposed under the Proposed Action Alternative are listed in Table C below.

Table C – Alternative 4 Plan 14 Ecosystem Restoration Measures

SARM Upstream Focal Area	SARM Downstream Focal Area	Chino Creek Focal Area	Mill Creek Focal Area
Water Conservation	Invasive Plan Management	Chino Creek Channel Restoration	Invasive Plant Management
Sediment Management	Sediment Management	Invasive Plant Management	Native Plantings
Invasive Plant Management	Non-Native Aquatic Management	Native Plantings	Cowbird Trapping
Native Plantings	In-Stream Habitat Features	Cowbird Trappings	Feral Pig Management
Riparian Edge Management		Feral Pig Management	
In-Stream Habitat Features			
Feral Pig Management			
Non-Native Aquatic Management			
Cowbird Trapping			

Source: OCWD.

1.4 Standard Air Quality and GHG Regulatory Conditions

The proposed project will be required to comply with the following regulatory conditions from the SCAQMD and State of California (State).

South Coast Air Quality Management District Rules

The following lists the SCAQMD rules that are applicable to all projects in the South Coast Air Basin (Air Basin).

Rule 402 - Nuisance

Rule 402 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. Compliance with Rule 402 will reduce local air quality and odor impacts to nearby sensitive receptors.

Rule 403- Fugitive Dust

Rule 403 governs emissions of fugitive dust during construction activities and requires that no person shall cause or allow the emissions of fugitive dust such that dust remains visible in the atmosphere beyond the property line or the dust emission exceeds 20 percent opacity, if the dust is from the operation of a motorized vehicle. Compliance with this rule is achieved through application of standard Best Available Control Measures, which include but are not limited to the measures below. Compliance with these rules would reduce local air quality impacts to nearby sensitive receptors.

- Utilize either a pad of washed gravel 50 feet long, 100 feet of paved surface, a wheel shaker, or a wheel washing device to remove material from vehicle tires and undercarriages before leaving project site.
- Do not allow any track out of material to extend more than 25 feet onto a public roadway and remove all track out at the end of each workday.
- Water all exposed areas on active sites at least three times per day and pre-water all areas prior to clearing and soil moving activities.
- Apply nontoxic chemical stabilizers according to manufacturer specifications to all construction areas that will remain inactive for 10 days or longer.
- Pre-water all material to be exported prior to loading, and either cover all loads or maintain at least 2 feet of freeboard in accordance with the requirements of California Vehicle Code Section 23114.
- Replant all disturbed area as soon as practical.
- Suspend all grading activities when wind speeds (including wind gusts) exceed 25 miles per hour.
- Restrict traffic speeds on all unpaved roads to 15 miles per hour or less.

State of California Rules

The following lists the State of California rules that are applicable to all residential projects in the State.

CARB Regulation for In-Use Off-Road Diesel Vehicles

On July 26, 2007, the California Air Resources Board (CARB) adopted a regulation to reduce diesel particulate matter (DPM) and NOx emissions from in-use off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation limits idling to no more than five consecutive minutes, requires reporting and labeling, and requires disclosure of the regulation upon vehicle sale. Performance requirements of the rule are based on a fleet's average NOx emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 2010 to delay the original timeline of the performance requirement making the first compliance deadline January 1, 2014 for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501-5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less). Currently, no commercial operation in California may add any equipment to their fleet that has a Tier 0 engine and medium and large fleets are restricted from adding Tier 1 engines. By January 1, 2016 small fleets will also be restricted from adding Tier 1 engines to their fleets and by January 1, 2018 medium and large fleets will be restricted from adding Tier 2 engines to their fleets. It should be noted that commercial fleets may continue to use their existing Tier 0 and 1 equipment, if they can demonstrate that the average emissions from their entire fleet emissions meet the NOx emissions targets.

CARB Resolution 08-43 for On-Road Diesel Truck Fleets

On December 12, 2008 the CARB adopted Resolution 08-43, which limits NOx, PM10 and PM2.5 emissions from on-road diesel truck fleets that operate in California. On October 12, 2009 Executive Order R-09-010 was adopted that codified Resolution 08-43 into Section 2025, title 13 of the California Code of Regulations. This regulation requires that by the year 2023 all commercial diesel trucks that operate in California shall meet model year 2010 (Tier 4 Final) or latter emission standards. In the interim period, this regulation provides annual interim targets for fleet owners to meet. By January 1, 2014, 50 percent of a truck fleet is required to have installed Best Available Control Technology (BACT) for NOx emissions and 100 percent of a truck fleet installed BACT for PM10 emissions. This regulation

also provides a few exemptions including a onetime per year 3-day pass for trucks registered outside of California. All on-road diesel trucks utilized during construction of the proposed project will be required to comply with Resolution 08-43.

1.5 Summary of Analysis Results

The following is a summary of the proposed project's impacts with regard to the State CEQA Guidelines air quality and GHG emissions checklist questions.

Conflict with or obstruct implementation of the applicable air quality plan?

Potentially significant impact for Alternatives 2, 3, and 4. With implementation of Environmental Commitments 1 and 2 Alternative 3 would be consistent with the SCAQMD AQMP and Alternatives 2 and 4 would result in an inconsistency with the SCAQMD AQMP. Impacts would remain significant unavoidable impacts for Alternatives 2 and 4 in relation to implementation of the SCAQMD's AQMP.

Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Potentially significant impact for Alternatives 2, 3, and 4. Environmental Commitments 1 and 2 would reduce Alternative 3 impacts to less than significant levels, but not Alternatives 2 and 4 to less than significant levels. Alternatives 2 and 4 impacts would remain significant unavoidable impacts.

Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard?

Potentially significant impact for Alternatives 2, 3, and 4. Environmental Commitments 1 and 2 would reduce Alternative 3 impacts to less than significant levels, but not Alternatives 2 and 4 to less than significant levels. Alternatives 2 and 4 impacts would remain significant unavoidable impacts.

Expose sensitive receptors to substantial pollutant concentrations?

Less than significant impact with implementation of Environmental Commitments 1 and 2.

Create objectionable odors affecting a substantial number of people?

Less than significant impact.

Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than significant impact for Alternative 3 and potentially significant impact for Alternatives 2 and 4. No environmental commitments are available that would reduce GHG emissions from Alternatives 2 and 4 to less than significant levels. Therefore, implementation of Alternatives 2 and 4 would result in a significant unavoidable cumulative GHG emissions impact.

Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs?

Less than significant impact for Alternative 3 and potentially significant impact for Alternatives 2 and 4. Alternatives 2 and 4 impacts would result in significant unavoidable impacts to applicable plans for reducing GHG emissions.

1.6 Environmental Commitments Required for the Proposed Project

This analysis found that through adherence to the State and SCAQMD air quality and GHG emissions reductions regulations summarized in Section 1.4 above and through implementation of the following environmental commitments, all air quality and GHG emission impacts would be reduced, however not to less than significant levels.

Environmental Commitment 1

The project applicant shall require that all off-road diesel-powered equipment that is greater than 50 horsepower and utilized during implementation of Alternative 2, 3, or 4, shall be registered with CARB and labelled detailing that the equipment meets Tier 4 Final emissions standards.

Environmental Commitment 2

The project applicant shall require that all haul trucks utilized during implementation of Alternative 2, 3, or 4, shall be licensed in California and shall meet the model year 2010 (Tier 4 Final) or newer emissions standards.

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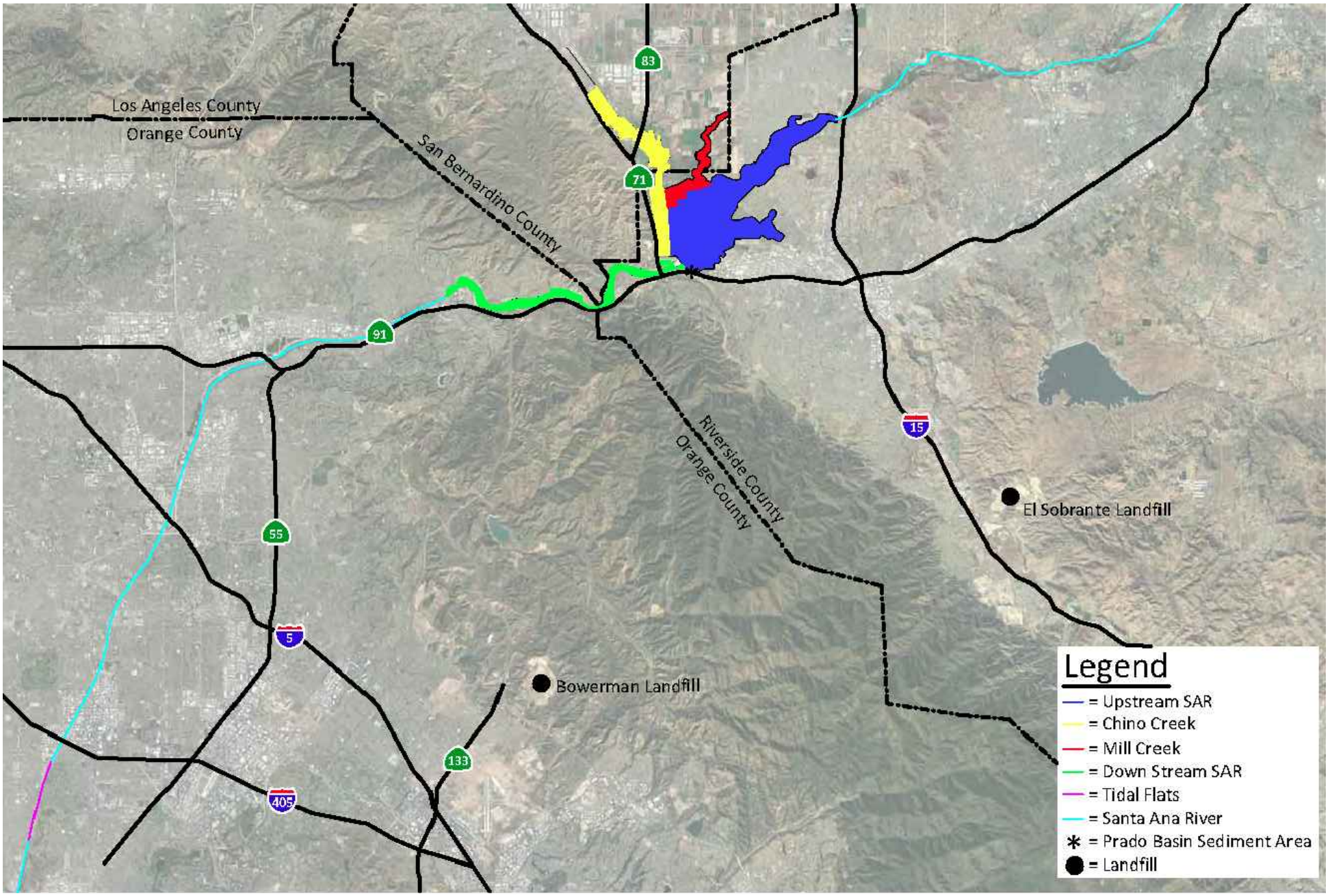

SOURCE: Kunzman Associates, Inc.

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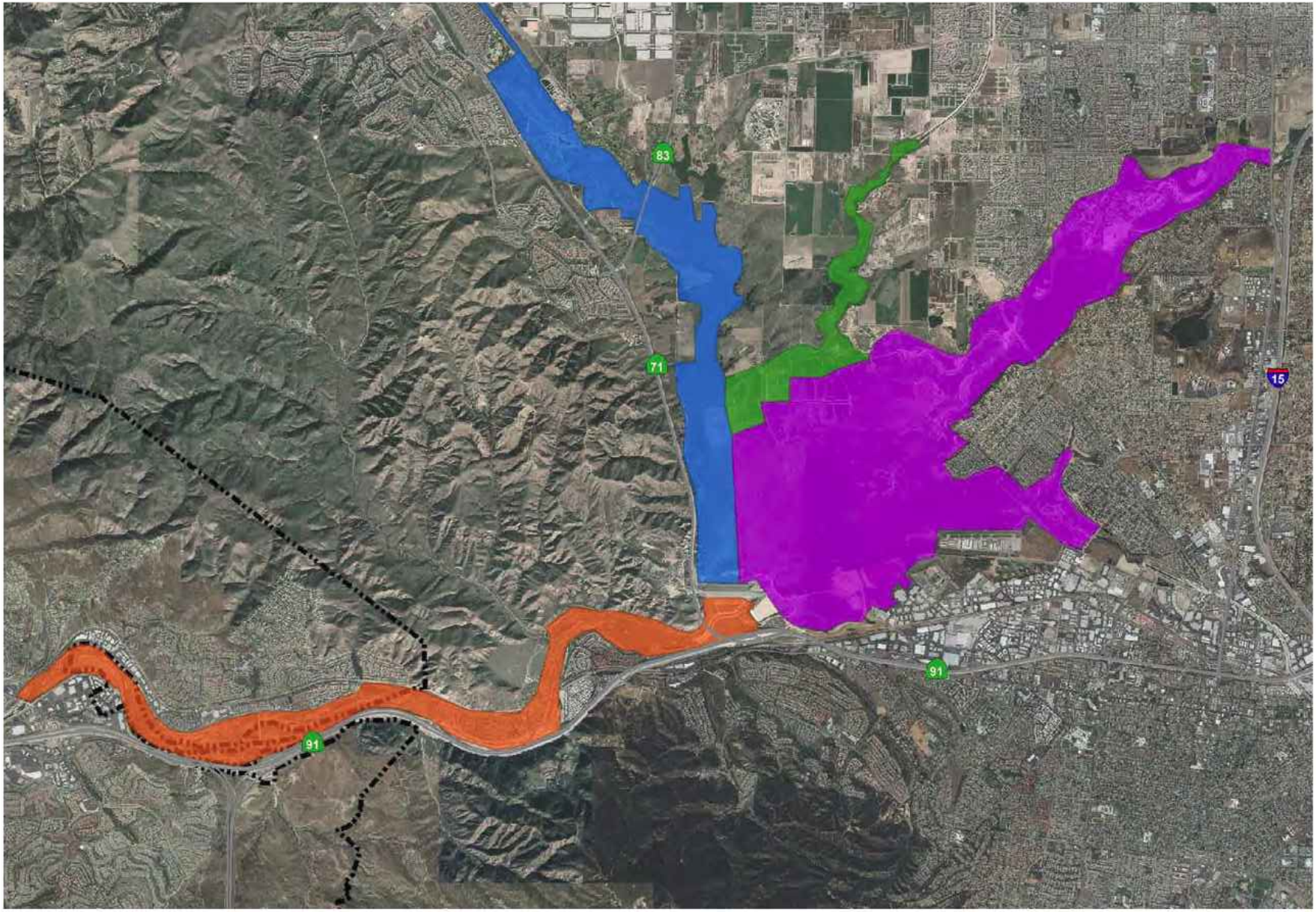
VISTA ENVIRONMENTAL

Figure 1
Vicinity Map



Legend: Upstream SARM; Downstream SARM; Mill Creek; Chino Creek

SOURCE: Kunzman Associates, Inc.

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VISTA ENVIRONMENTAL

Figure 2
Focal Areas

2.0 POLLUTANTS

Pollutants are generally classified as either criteria pollutants or non-criteria pollutants. Federal ambient air quality standards have been established for criteria pollutants, whereas no ambient standards have been established for non-criteria pollutants. For some criteria pollutants, separate standards have been set for different periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). A summary of federal and state ambient air quality standards is provided in the Regulatory Framework section.

2.1 Criteria Pollutants

The criteria pollutants consist of: ozone, nitrogen oxides, carbon monoxide, sulfur oxides, lead, and particulate matter. These pollutants can harm your health and the environment, and cause property damage. The Environmental Protection Agency (EPA) calls these pollutants "criteria" air pollutants because it regulates them by developing human health-based and/or environmentally-based criteria for setting permissible levels. The following provides descriptions of each of the criteria pollutants.

Nitrogen Oxides

Nitrogen Oxides (NOx) is the generic term for a group of highly reactive gases which contain nitrogen and oxygen. While most NOx are colorless and odorless, concentrations of nitrogen dioxide (NO_2) can often be seen as a reddish-brown layer over many urban areas. NOx form when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of NO_x are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuel. NOx reacts with other pollutants to form, ground-level ozone, nitrate particles, acid aerosols, as well as NO_2, which cause respiratory problems. NO_x and the pollutants formed from NO_x can be transported over long distances, following the patterns of prevailing winds. Therefore controlling NOx is often most effective if done from a regional perspective, rather than focusing on the nearest sources.

Ozone

Ozone is not usually emitted directly into the air but in the vicinity of ground-level is created by a chemical reaction between NOx and volatile organic compounds (VOC) in the presence of sunlight. Motor vehicle exhaust, industrial emissions, gasoline vapors, chemical solvents as well as natural sources emit NOx and VOC that help form ozone. Ground-level ozone is the primary constituent of smog. Sunlight and hot weather cause ground-level ozone to form with the greatest concentrations usually occurring downwind from urban areas. Ozone is subsequently considered a regional pollutant. Ground-level ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Because NOx and VOC are ozone precursors, the health effects associated with ozone are also indirect health effects associated with significant levels of NOx and VOC emissions.

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes approximately 56 percent of all CO emissions nationwide. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing), residential wood burning, and natural sources such as forest fires. Woodstoves, gas stoves, cigarette smoke, and unvented gas and kerosene space heaters are indoor sources of CO. The highest levels of CO in the outside air typically occur during the colder months of the year when inversion conditions are more frequent. The air pollution becomes trapped near the ground beneath

a layer of warm air. CO is described as having only a local influence because it dissipates quickly. Since CO concentrations are strongly associated with motor vehicle emissions, high CO concentrations generally occur in the immediate vicinity of roadways with high traffic volumes and traffic congestion, active parking lots, and in automobile tunnels. Areas adjacent to heavily traveled and congested intersections are particularly susceptible to high CO concentrations.

CO is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. The health threat from lower levels of CO is most serious for those who suffer from heart disease such as angina, clogged arteries, or congestive heart failure. For a person with heart disease, a single exposure to CO at low levels may cause chest pain and reduce that person's ability to exercise; repeated exposures may contribute to other cardiovascular effects. High levels of CO can affect even healthy people. People who breathe high levels of CO can develop vision problems, reduced ability to work or learn, reduced manual dexterity, and difficulty performing complex tasks. At extremely high levels, CO is poisonous and can cause death.

Sulfur Oxides

Sulfur Oxide (SOx) gases are formed when fuel containing sulfur, such as coal and oil is burned, as well as from the refining of gasoline. SOx dissolves easily in water vapor to form acid and interacts with other gases and particles in the air to form sulfates and other products that can be harmful to people and the environment.

Lead

Lead is a metal found naturally in the environment as well as manufactured products. The major sources of lead emissions have historically been motor vehicles and industrial sources. Due to the phase out of leaded gasoline, metal processing is now the primary source of lead emissions to the air. High levels of lead in the air are typically only found near lead smelters, waste incinerators, utilities, and lead-acid battery manufacturers. Exposure of fetuses, infants and children to low levels of Pb can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure.

Particulate Matter

Particle matter (PM) is the term for a mixture of solid particles and liquid droplets found in the air. PM is made up of a number of components including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. Particles that are less than 10 micrometers in diameter (PM10) are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. Particles that are less than 2.5 micrometers in diameter (PM2.5) have been designated as a subset of PM10 due to their increased negative health impacts and its ability to remain suspended in the air longer and travel further.

2.2 Other Pollutants of Concern

Toxic Air Contaminants

In addition to the above-listed criteria pollutants, toxic air contaminants (TACs) are another group of pollutants of concern. TACs is a term that is defined under the California Clean Air Act and consists of the same substances that are defined as Hazardous Air Pollutants (HAPs) in the Federal Clean Air Act. There are over 700 hundred different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial

operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least 40 different toxic air contaminants. The most important of these TACs, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Public exposure to TACs can result from emissions from normal operations as well as from accidental releases. Health effects of TACs include cancer, birth defects, neurological damage, and death.

TACs are less pervasive in the urban atmosphere than criteria air pollutants, however they are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are hundreds of different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust.

Diesel Particulate Matter

According to *The California Almanac of Emissions and Air Quality 2013 Edition*, the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important of which is diesel particulate matter (DPM). DPM is a subset of PM2.5 because the size of diesel particles are typically 2.5 microns and smaller. The identification of DPM as a TAC in 1998 led the California Air Resources Board (CARB) to adopt the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles in September 2000. The plan's goals are a 75-percent reduction in DPM by 2010 and an 85-percent reduction by 2020 from the 2000 baseline. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or "soot." Diesel exhaust also contains a variety of harmful gases and over 40 other cancer-causing substances. California's identification of DPM as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to DPM is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's potential airborne cancer risk from combustion sources. The various pollutants within DPM that also cause acute and chronic health impacts are detailed below in Table D. Table D was developed through crosschecking all diesel emissions pollutants provided in San Diego Air Pollutant Control District's (SDAPCD) Diesel Fired Engines Emissions Factor Table to the list of acute and chronic reference exposure levels provided at: http://oehha.ca.gov/air/allrels.html.

According to the California Office of Environmental Health and Hazards Assessment (OEHHA), no acute risk had been found to be directly created from DPM, so there is no acute AREL assigned to DPM. However, as detailed in Table D, other TAC emissions associated with diesel exhaust do have an acute REL assigned to them. In order to account for the acute risk from all TAC emissions associated with diesel emissions, a hypothetical acute REL was calculated for DPM through multiplying each TAC with an acute REL to its diesel weight fraction and then adding together the results, which resulted in a hypothetical acute AREL of 2,189 for diesel emissions.

Table D – Diesel Emission Pollutants that Cause Acute and Chronic Health Impacts

TAC	TAC Potency Factors (µg/m³)[1] Acute REL[2]	Chronic REL	Percent of DPM Emission Rate[3]	Target Organ Systems
1,3-Butadiene	660	140	0.51%	Development
Acetaldehyde	470	140	1.84%	Eyes, respiratory system (sensory irritation)
Acrolein	2.5	0.35	0.08%	Eyes, respiratory system
Arsenic	0.2	0.015	0.004%	Reproductive/developmental, cardiovascular system, nervous system
Benzene	27	3	0.44%	Hematologic system, immune system, reproductive/developmental
Cadmium	--	0.02	0.004%	kidney, respiratory system
Chlorobenzene	--	1,000	0.0005%	Eyes, respiratory system
Chromium (hexavalent)	--	0.2	0.001%	Respiratory system, hematologic system
Copper	100	--	0.01%	Respiratory system
Ethyl benzene	--	5	0.03%	Liver, kidney, developmental
Formaldehyde	55	9	4.07%	Eyes, immune system, respiratory
Hexane	--	200	0.06%	Nervous system
Hydrogen Chloride	2,100	9	0.44%	Eyes, respiratory system
Manganese	--	0.09	0.01%	Nervous system
Mercury	0.6	0.03	0.005%	Reproductive/developmental
Naphthalene	--	9	0.05%	Respiratory system
Nickel	0.2	002	0.01%	Immune system, respiratory system
Propylene	--	3000	1.10%	Respiratory System
Selenium	--	20	0.01%	Liver, cardiovascular system, nervous system
Toluene	37000	300	0.25%	Nervous system, eyes, respiratory system, reproductive/developmental
Xylene	22000	700	0.10%	Eyes, nervous and respiratory systems
DPM	--	5	--	Respiratory system

Notes:
[1] Potency factors obtained from: http://www.oehha.ca.gov/risk/ChemicalDB/index.asp
[2] REL = Reference Exposure Level
[3] Percentage of DPM Emission Rate calculated by dividing the pollutant's pounds per 1,000 gallons rate by the PM2.5 pounds per 1,000 gallons rate provided by the SDAPCD
Sources: SDAPCD, 2011 and OEHHA, 2014.

Asbestos

Asbestos is listed as a TAC by CARB and as a Hazardous Air Pollutant by the EPA. Asbestos occurs naturally in mineral formations and crushing or breaking these rocks, through construction or other means, can release asbestiform fibers into the air. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining. The risk of disease is dependent upon the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs and with time may be linked to such diseases as asbestosis, lung cancer, and mesothelioma. The nearest likely locations of naturally occurring asbestos, as identified in the *General Location Guide for Ultramafic Rocks in California*, prepared by the California Division of Mines and Geology, is located in Santa Barbara County. The nearest historic asbestos mine to the project site, as

identified in the *Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California*, prepared by U.S. Geological Survey, is located at Asbestos Mountain, which is approximately 70 miles southeast of the project study area in the San Jacinto Mountains. Due to the distance to the nearest natural occurrences of asbestos, the project site is not likely to contain asbestos.

2.3 Greenhouse Gases

Constituent gases of the Earth's atmosphere, called atmospheric greenhouse gases (GHGs), play a critical role in the Earth's radiation amount by trapping infrared radiation from the Earth's surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO_2), methane (CH_4), ozone (O_3), water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Transportation is responsible for 41 percent of the State's greenhouse gas emissions, followed by electricity generation. Emissions of CO_2 and N_2O are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO_2, where CO_2 is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. The following provides a description of each of the greenhouse gases and their global warming potential.

Water Vapor

Water vapor is the most abundant, important, and variable GHG in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. The feedback loop in which water is involved is critically important to projecting future climate change. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to "hold" more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop will continue is unknown as there is also dynamics that put the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually also condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the Earth's surface and heat it up).

Carbon Dioxide

The natural production and absorption of CO_2 is achieved through the terrestrial biosphere and the ocean. However, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood. Since the industrial revolution began in the mid 1700s, each of these activities has increased in scale and distribution. CO_2 was the first GHG demonstrated to be increasing in atmospheric concentration with the first conclusive measurements being made in the last half of the 20th century. Prior to the industrial revolution, concentrations were fairly stable at 280 parts per million (ppm). The International Panel on Climate Change (IPCC) indicates that concentrations were 379 ppm in 2005, an increase of more than 30

percent. Left unchecked, the IPCC projects that concentration of carbon dioxide in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources. This could result in an average global temperature rise of at least two degrees Celsius or 3.6 degrees Fahrenheit.

Methane

CH_4 is an extremely effective absorber of radiation, although its atmospheric concentration is less than that of CO_2. Its lifetime in the atmosphere is brief (10 to 12 years), compared to some other GHGs (such as CO_2, N_2O, and Chlorofluorocarbons (CFCs)). CH_4 has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropocentric sources include fossil-fuel combustion and biomass burning.

Nitrous Oxide

Concentrations of N_2O also began to rise at the beginning of the industrial revolution. In 1998, the global concentration of this GHG was documented at 314 parts per billion (ppb). N_2O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. N_2O is also commonly used as an aerosol spray propellant (i.e., in whipped cream bottles, in potato chip bags to keep chips fresh, and in rocket engines and race cars).

Chlorofluorocarbons

CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C_2H_6) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the Earth's surface). CFCs have no natural source, but were first synthesized in 1928. They were used for refrigerants, aerosol propellants, and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and in 1989 the European Community agreed to ban CFCs by 2000 and subsequent treaties banned CFCs worldwide by 2010. This effort was extremely successful, and the levels of the major CFCs are now remaining level or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

Hydrofluorocarbons

HFCs are synthetic man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 (CHF_3), HFC-134a (CF_3CH_2F), and HFC-152a (CH_3CHF_2). Prior to 1990, the only significant emissions were HFC-23. HFC-134a use is increasing due to its use as a refrigerant. Concentrations of HFC-23 and HFC-134a in the atmosphere are now about 10 parts per trillion (ppt) each. Concentrations of HFC-152a are about 1 ppt. HFCs are manmade for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons

Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6).

Concentrations of CF_4 in the atmosphere are over 70 ppt. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing.

Sulfur Hexafluoride

Sulfur Hexafluoride (SF_6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF_6 has the highest global warming potential of any gas evaluated; 23,900 times that of CO_2. Concentrations in the 1990s were about 4 ppt. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Aerosols

Aerosols are particles emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Cloud formation can also be affected by aerosols. Sulfate aerosols are emitted when fuel containing sulfur is burned. Black carbon (or soot) is emitted during biomass burning due to the incomplete combustion of fossil fuels. Particulate matter regulation has been lowering aerosol concentrations in the United States; however, global concentrations are likely increasing.

2.4 Global Warming Potential

GHGs have varying global warming potential (GWP). The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to the reference gas, CO_2. The GHGs listed by the IPCC and the CEQA Guidelines are discussed in this section in order of abundance in the atmosphere. Water vapor, the most abundant GHG, is not included in this list because its natural concentrations and fluctuations far outweigh its anthropogenic (human-made) sources. To simplify reporting and analysis, GHGs are commonly defined in terms of their GWP. The IPCCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of CO_2e. The GWP of CO_2 is by definition, 1. The GWP values used in this analysis are based on the IPCC Second Assessment Report (SAR) and United Nations Framework Convention on Climate Change (UNFCCC) reporting guidelines, and are detailed in Table E. The SAR GWPs are used in CARB's California inventory and AB32 Scoping Plan estimates.

Table E – Global Warming Potentials, Atmospheric Lifetimes and Abundances of GHGs

Gas	Atmospheric Lifetime (years)[1]	Global Warming Potential (100 Year Horizon)[2]	Atmospheric Abundance
Carbon Dioxide (CO_2)	50-200	1	379 ppm
Methane (CH_4)	9-15	25	1,774 ppb
Nitrous Oxide (N_2O)	114	298	319 ppb
HFC-23	270	14,800	18 ppt
HFC-134a	14	1,430	35 ppt
HFC-152a	1.4	124	3.9 ppt
PFC: Tetrafluoromethane (CF_4)	50,000	7,390	74 ppt
PFC: Hexafluoroethane (C_2F_6)	10,000	12,200	2.9 ppt
Sulfur Hexafluoride (SF_6)	3,200	22,800	5.6 ppt

Notes:
[1] Defined as the half-life of the gas.
[2] Compared to the same quantity of CO_2 emissions and is based on the Intergovernmental Panel On Climate Change (IPCC) 2007 standard, which is utilized in CalEEMod (Version 2016.3.1),that is used in this report (CalEEMod user guide: Appendix A).
Definitions: ppm = parts per million; ppb = parts per billion; ppt = parts per trillion
Source: IPCC 2007, EPA 2015

3.0 AIR QUALITY MANAGEMENT

3.1 Regulatory Setting

The air quality at the project sites are addressed through the efforts of various international, federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality are discussed below.

International

In 1988, the United Nations established the Intergovernmental Panel on Climate Change (IPCC) to evaluate the impacts of global climate change and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the United Nations' Framework Convention on Climate Change (UNFCCC) agreement with the goal of controlling GHG emissions. The parties of the UNFCCC adopted the Kyoto Protocol, which set binding GHG reduction targets for 37 industrialized countries, the objective of reducing their collective GHG emissions by five percent below 1990 levels by 2012. The Kyoto Protocol has been ratified by 182 countries, but has not been ratified by the United States. It should be noted that Japan and Canada opted out of the Kyoto Protocol and the remaining developed countries that ratified the Kyoto Protocol have not met their Kyoto targets. The Kyoto Protocol expired in 2012 and the amendment for the second commitment period from 2013 to 2020 has not yet entered into legal force. The Parties to the Kyoto Protocol negotiated the Paris Agreement in December 2015, agreeing to set a goal of limiting global warming to less than 2 degrees Celsius compared with pre-industrial levels. The Paris Agreement has been adopted by 195 nations with 147 ratifying it, including the United States by President Obama, who ratified it by Executive Order on September 3, 2016. On June 1, 2017, President Trump announced that the United States is withdrawing from the Paris Agreement, however the Paris Agreement is still legally binding by the other remaining nations.

Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of compounds that deplete ozone in the stratosphere—CFCs, halons, carbon tetrachloride, and methyl chloroform—were to be phased out, with the first three by the year 2000 and methyl chloroform by 2005.

Federal – Clean Air Act and United States Environmental Protection Agency

The Clean Air Act, first passed in 1963 with major amendments in 1970, 1977 and 1990, is the overarching legislation covering regulation of air pollution in the United States. The Clean Air Act has established the mandate for requiring regulation of both mobile and stationary sources of air pollution at the state and federal level. The Environmental Protection Agency (EPA) was created in 1970 in order to consolidate research, monitoring, standard-setting and enforcement authority into a single agency.

The EPA is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. NAAQS pollutants were identified using medical evidence and are shown below in Table F.

As part of its enforcement responsibilities, the EPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the national standards. The SIP must integrate federal, state, and local components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the SIP.

Table F – State and Federal Criteria Pollutant Standards

Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
Ozone (O_3)	0.09 ppm / 1-hour 0.07 ppm / 8-hour	0.070 ppm, / 8-hour	(a) Pulmonary function decrements and localized lung edema in humans and animals; (b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) Increased mortality risk; (d) Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) Vegetation damage; and (f) Property damage.
Carbon Monoxide (CO)	20.0 ppm / 1-hour 9.0 ppm / 8-hour	35.0 ppm / 1-hour 9.0 ppm / 8-hour	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; and (d) Possible increased risk to fetuses.
Nitrogen Dioxide (NO_2)	0.18 ppm / 1-hour 0.030 ppm / annual	100 ppb / 1-hour 0.053 ppm / annual	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (c) Contribution to atmospheric discoloration.
Sulfur Dioxide (SO_2)	0.25 ppm / 1-hour 0.04 ppm / 24-hour	75 ppb / 1-hour 0.14 ppm/annual	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.
Suspended Particulate Matter (PM_{10}) Suspended Particulate Matter ($PM_{2.5}$)	50 µg/m^3 / 24-hour 20 µg/m^3 / annual 12 µg/m^3 / annual	150 µg/m^3 / 24-hour 35 µg/m^3 / 24-hour 12 µg/m^3 / annual	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; and (c) Increased risk of premature death from heart or lung diseases in elderly.
Sulfates	25 µg/m^3 / 24-hour	No Federal Standards	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; and (f) Property damage.
Lead	1.5 µg/m^3 / 30-day	0.15 µg/m^3 /3-month rolling	(a) Learning disabilities; and (b) Impairment of blood formation and nerve conduction.
Visibility Reducing Particles	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more due to particles when relative humidity is less than 70 percent.	No Federal Standards	Visibility impairment on days when relative humidity is less than 70 percent.

Source: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf .

The CARB defines attainment as the category given to an area with no violations in the past three years. As indicated below in Table G, the Air Basin has been designated by EPA for the national standards as a non-attainment area for ozone (O_3) and suspended particulates (PM10 and PM2.5) and partial non-

attainment for lead. Currently, the Air Basin is in attainment with the national ambient air quality standards for carbon monoxide (CO), sulfur dioxide (SO_2), and nitrogen dioxide (NO_2).

Table G – South Coast Air Basin Attainment Status

Criteria Pollutant	Standard	Averaging Time	Designation[a)]	Attainment Date[b)]
1-Hour Ozone	NAAQS	1979 1-Hour (0.12 ppm)	Nonattainment (Extreme)	2/6/2023 Originally 11/15/2010 (not attained)[c)]
	CAAQS	1-Hour (0.09 ppm)	Nonattainment	N/A
8-Hour Ozone[d)]	NAAQS	1997 8-Hour (0.08 ppm)	Nonattainment (Extreme)	6/15/2024
	NAAQS	2008 8-Hour (0.075 ppm)	Nonattainment (Extreme)	7/20/2032
	NAAQS	2015 8-Hour (0.070 ppm)	Designations Pending	~2037
	CAAQS	8-Hour (0.070 ppm)	Nonattainment	Beyond 2032
CO	NAAQS	1-Hour (35 ppm) 8-Hour (9 ppm)	Attainment (Maintenance)	6/11/2007 (attained)
	CAAQS	1-Hour (20 ppm) 8-Hour (9 ppm)	Attainment	6/11/2007 (attained)
NO_2[e)]	NAAQS	1-Hour (0.10 ppm)	Unclassifiable/ Attainment	N/A (attained)
	NAAQS	Annual (0.053 ppm)	Attainment (Maintenance)	9/22/1998 (attained)
	CAAQS	1-Hour (0.18 ppm) Annual (0.030 ppm)	Attainment	---
SO_2[f)]	NAAQS	1-Hour (75 ppb)	Designations Pending (expect Unclassifiable/ Attainment)	N/A (attained)
	NAAQS	24-Hour (0.14 ppm) Annual (0.03 ppm)	Unclassifiable/ Attainment	3/19/1979 (attained)
PM10	NAAQS	1987 24-hour (150 $\mu g/m^3$)	Attainment (Maintenance)[g)]	7/26/2013 (attained)
	CAAQS	24-hour (50 $\mu g/m^3$) Annual (20 $\mu g/m^3$)	Nonattainment	N/A
PM2.5[h)]	NAAQS	2006 24-Hour (35 $\mu g/m^3$)	Nonattainment (Serious)	12/31/2019
	NAAQS	1997 Annual (15.0 $\mu g/m^3$)	Nonattainment	4/5/2015
	NAAQS	2012 Annual (12.0 $\mu g/m^3$)	Nonattainment (Serious)	12/31/2025
	CAAQS	Annual (12.0 $\mu g/m^3$)	Nonattainment	N/A
Lead	NAAQS	3-Months Rolling (0.15 $\mu g/m^3$)	Nonattainment (Partial)	12/31/2015

Source: SCAQMD, February 2016

Notes:

a) U.S. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassifiable/Attainment or Unclassifiable

b) A design value below the NAAQS for data through the full year or smog season prior to the attainment date is typically required for attainment demonstration

c) 1-hour O_3 standard (0.12 ppm) was revoked, effective June 15, 2005; however, the Basin has not attained this standard based on 2008-2010 data and is still subject to anti-backsliding requirements

d) 1997 8-hour O3 standard (0.08 ppm) was reduced (0.075 ppm), effective May 27, 2008; the revoked 1997 O_3 standard is still subject to anti-backsliding requirements

e) New NO_2 1-hour standard, effective August 2, 2010; attainment designations January 20, 2012; annual NO2 standard retained

f) The 1971 annual and 24-hour SO_2 standards were revoked, effective August 23, 2010; however, these 1971 standards will remain in effect until one year after U.S. EPA promulgates area designations for the 2010 SO_2 1-hour standard. Area designations are still pending, with Basin expected to be designated Unclassifiable /Attainment.
g) Annual PM10 standard was revoked, effective December 18, 2006; 24-hour PM10 NAAQS deadline was 12/31/2006; SCAQMD request for attainment redesignation and PM10 maintenance plan was approved by U.S. EPA on June 26, 2013, effective July 26, 2013.
h) Attainment deadline for the 2006 24-Hour PM2.5 NAAQS (designation effective December 14, 2009) is December 31, 2019 (end of the 10th calendar year after effective date of designations for Serious nonattainment areas). Annual PM2.5 standard was revised on January 15, 2013, effective March 18, 2013, from 15 to 12 µg/m3. Designations effective April 15, 2015, so Serious area attainment deadline is December 31, 2025.
i) Partial Nonattainment designation – Los Angeles County portion of Basin only for near-source monitors. Expect to remain in attainment based on current monitoring data.

In 2011, the Air Basin exceeded federal standards for either ozone or PM2.5 at one or more locations on a total of 124 days, based on the current federal standards for 8-hour ozone and 24-hour PM2.5. Despite substantial improvements in air quality over the past few decades, some air monitoring stations in the Air Basin still exceed the NAAQS for ozone more frequently than any other stations in the U.S. In 2011, three of the top five stations that exceeded the 8-hour ozone NAAQS were located in the Air Basin (Central San Bernardino Mountains, East San Bernardino Valley, and Metropolitan Riverside County).

PM2.5 in the Air Basin has improved significantly in recent years, with 2010 and 2011 being the cleanest years on record. In 2011, only one station in the Air Basin (Metropolitan Riverside County at Mira Loma) exceeded the annual PM2.5 NAAQS and the 98th percentile form of the 24-hour PM2.5 NAAQS, as well as the 3-year design values for these standards. Basin-wide, the federal PM2.5 24-hour standard level was exceeded in 2011 on 17 sampling days.

The Air Basin is currently in attainment for the federal standards for NO_2. While the concentration level of the new 1-hour NO_2 federal standard (100 ppb) was exceeded in the Air Basin at two stations (Central Los Angeles and Long Beach) on the same day in 2011, the NAAQS NO_2 design value has not been exceeded. (SCAQMD 2012) Therefore, the Basin remains in attainment of the NO_2 NAAQS.

Although much of the South Coast Air Basin, including the proposed site location within Orange County, is in attainment for lead, the EPA designated the Los Angeles County portion of the Air Basin as nonattainment for the revised (2008) federal lead standard (0.15 µg/m^3, rolling 3-month average). This was due to the addition of source-specific monitoring under the new federal regulation. This designation was based on two source-specific monitors in Vernon and the City of Industry exceeding the revised standard in the 2007-2009 period of data used. As of the 2009-2011 data period, only one of these stations (Vernon) still exceeded the lead standard. The *2012 Lead State Implementation Plan Los Angeles County*, prepared by SCAQMD and adopted on May 4, 2012, provides measures to meet attainment of lead by December 31, 2015. Current monitoring data shows that lead is now below the standards at all monitoring stations, however it will take three years of meeting the standards before Los Angeles County can request to be re-designated by the EPA.

In Massachusetts v. Environmental Protection Agency (Docket No. 05–1120), argued November 29, 2006 and decided April 2, 2007, the U.S. Supreme Court held that not only did the EPA have authority to regulate greenhouse gases, but the EPA's reasons for not regulating this area did not fit the statutory requirements. As such, the U.S. Supreme Court ruled that the EPA should be required to regulate CO_2 and other greenhouse gases as pollutants under the federal Clean Air Act (CAA).

In response to the FY2008 Consolidations Appropriations Act (H.R. 2764; Public Law 110-161), EPA proposed a rule on March 10, 2009 that requires mandatory reporting of GHG emissions from large sources in the United States. On September 22, 2009, the Final Mandatory Reporting of GHG Rule was signed and published in the Federal Register on October 30, 2009. The rule became effective on December 29, 2009. This rule requires suppliers of fossil fuels or industrial GHGs, manufacturers of

vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to EPA.

On December 7, 2009, the EPA Administrator signed two distinct findings under section 202(a) of the Clean Air Act. One is an endangerment finding that finds concentrations of the six GHGs in the atmosphere threaten the public health and welfare of current and future generations. The other is a cause or contribute finding, that finds emissions from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare. These actions did not impose any requirements on industry or other entities, however, since 2009 the EPA has been providing GHG emission standards for vehicles and other stationary sources of GHG emissions that are regulated by the EPA. On September 13, 2013 the EPA Administrator signed 40 CFR Part 60, that limits emissions from new sources to 1,100 pounds of CO_2 per MWh for fossil fuel-fired utility boilers and 1,000 pounds of CO_2 per MWh for large natural gas-fired combustion units.

On August 3, 2015, the EPA announced the Clean Power Plan, emissions guidelines for U.S. states to follow in developing plans to reduce GHG emissions from existing fossil fuel-fired power plants (Federal Register Vol. 80, No. 205, October 23 2015). Implementation of the rule has been temporarily frozen by a legal challenge from 29 states, pending review by the Washington DC circuit court of appeals scheduled for June 2016.

State – California Air Resources Board

The California Air Resources Board (CARB), which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets the California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. The CAAQS for criteria pollutants are shown above in Table F. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g. hairspray, aerosol paints, and barbeque lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

The South Coast Air Basin has been designated by the CARB as a non-attainment area for ozone, PM10, PM2.5 and lead. Currently, the Air Basin is in attainment with the ambient air quality standards for CO, NO_2, SO_2, and sulfates and is unclassified for visibility reducing particles and Hydrogen Sulfide.

In 2008 the CARB adopted Resolution 08-43, which limits NOx, PM10 and PM2.5 emissions from on-road diesel truck fleets that operate in California. In 2009 Executive Order R-09-010 was adopted that codified Resolution 08-43 into Section 2025, title 13 of the California Code of Regulations. This regulation requires that by the year 2023 all commercial diesel trucks that operate in California shall meet model year 2010 (Tier 4 Final) or latter emission standards. In the interim period, this regulation provides annual interim targets for fleet owners to meet. This regulation also provides a few exemptions including a onetime per year 3-day pass for trucks registered outside of California.

CARB is also responsible for regulations pertaining to Toxic Air Contaminants (TACs). The Air Toxics "Hot Spots" Information and Assessment Act (Assembly Bill [AB] 2588, 1987, Connelly) was enacted in 1987 as a means to establish a formal air toxics emission inventory risk quantification program. AB 2588, as amended, establishes a process that requires stationary sources to report the type and quantities of certain substances their facilities routinely release in California. The data is ranked by high, intermediate, and low categories, which are determined by: the potency, toxicity, quantity, volume, and proximity of the facility to nearby receptors.

CARB also proposed interim statewide CEQA thresholds for GHG emissions and released *Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act*, on October 24, 2008 that has been utilized by the SCAQMD's GHG Significance Threshold Stakeholder Working Group in their framework for developing SCAQMD's draft GHG emissions thresholds. The State currently has no regulations that establish ambient air quality standards for GHGs. However, the State has passed laws directing CARB to develop actions to reduce GHG emissions, which are listed below.

Executive Order B-30-15, Senate Bill 32 and Assembly Bill 197

The California Governor issued Executive Order B-30-15 (EO B-30-15) on April 29, 2015 that aims to reduce California's GHG emissions 40 percent below 1990 levels by 2030. This executive order aligns California's GHG reduction targets with those of other international governments, such as the European Union that set the same 2030 target in October 2014. This target will make it possible to reach the ultimate goal of reducing GHG emissions 80 percent under 1990 levels by 2050 that is based on scientifically established levels needed in the U.S.A to limit global warming below 2 degrees Celsius – the warming threshold at which scientists say there will likely be major climate disruptions such as super droughts and rising sea levels. Assembly Bill 197 (AB 197) (September 8, 2016) and Senate Bill 32 (SB 32) (September 8, 2016) codified into statute the GHG emissions reduction targets of at least 40 percent below 1990 levels by 2030 as detailed in EO B-30-15. AB 197 also requires additional GHG emissions reporting that is broken down to sub-county levels and requires CARB to consider the social costs of emissions impacting disadvantaged communities.

Assembly Bill 1493

California Assembly Bill 1493 (also known as the Pavley Bill, in reference to its author Fran Pavley) was enacted on July 22, 2002 and required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2004, CARB approved the "Pavley I" regulations limiting the amount of GHGs that may be released from new passenger automobiles that are being phased in between model years 2009 through 2016. These regulations will reduce GHG emissions by 30 percent from 2002 levels by 2016. The second set of regulations "Pavley II" is currently in development and will be phased in between model years 2017 through 2025 and will reduce emissions by 45 percent by the year 2020 as compared to the 2002 fleet. The Pavley II standards are being developed by linking the GHG emissions and formerly separate toxic tailpipe emissions standards previously known as the "LEV III" (third stage of the Low Emission Vehicle standards) into a single regulatory framework. The new rules reduce emissions from gasoline-powered cars as well as promote zero-emissions auto technologies such as electricity and hydrogen, and through increasing the infrastructure for fueling hydrogen vehicles. In 2009, the U.S. EPA granted California the authority to implement the GHG standards for passenger cars, pickup trucks and sport utility vehicles. In September 2009, the Pavley I regulations were adopted by CARB.

Executive Order S-3-05

In 2005 the California Governor issued Executive Order S 3-05, GHG Emission, which established the following reduction targets:

- 2010: Reduce greenhouse gas emissions to 2000 levels;
- 2020: Reduce greenhouse gas emissions to 1990 levels;
- 2050: Reduce greenhouse gas emissions to 80 percent below 1990 levels.

The executive order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. To comply with the

Executive Order, the secretary of CalEPA created the California Climate Action Team (CAT), made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of businesses, local governments, and communities and through State incentive and regulatory programs. The State achieved its first goal of reducing greenhouse gas emissions to 2000 levels by 2010.

Assembly Bill 32

In 2006, the California State Legislature adopted Assembly Bill 32 (AB 32), the California Global Warming Solutions Act. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Emission reductions shall include carbon sequestration projects that would remove carbon from the atmosphere and utilize best management practices that are technologically feasible and cost effective.

In 2007 CARB released the calculated Year 1990 GHG emissions of 431 million metric tons of CO2e ($MMTCO_2e$). The 2020 target of 431 $MMTCO_2e$ requires the reduction of 78 $MMTCO_2e$, or approximately 16 percent from the State's projected 2020 business as usual emissions of 596 $MMTCO_2e$ and the reduction of 42 $MMTCO_2e$, or almost 10 percent from the 2002-2004 average GHG emissions. Under AB 32, CARB was required to adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 cap by 2020. Early measures CARB took to lower GHG emissions included requiring operators of the largest industrial facilities that emit 25,000 metric tons of CO2 in a calendar year to submit verification of GHG emissions by December 1, 2010. The CARB Board also approved nine discrete early action measures that include regulations affecting landfills, motor vehicle fuels, refrigerants in cars, port operations and other sources, all of which became enforceable on or before January 1, 2010.

CARB's Scoping Plan that was adopted in 2009, proposes a variety of measures including: strengthening energy efficiency and building standards; targeted fees on water and energy use; a market-based cap-and-trade system; achieving a 33 percent renewable energy mix; and a fee regulation to fund the program. The 2014 update to the Scoping Plan identifies strategies moving beyond the 2020 targets to the year 2050.

The Cap and Trade Program established under the Scoping Plan sets a statewide limit on sources responsible for 85 percent of California's GHG emissions, and has established a market for long-term investment in energy efficiency and cleaner fuels since 2012.

Executive Order S-1-07

Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

In 2009 CARB approved the proposed regulation to implement the low-carbon fuel standard. The standard was challenged in the courts, but has been in effect since 2011 and was re-approved by the CARB in 2015. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. The low carbon fuel standard is designed to provide a framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet annually. Reformulated gasoline mixed with corn-derived ethanol and low-sulfur diesel fuel represent the baseline fuels. Lower carbon

fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel. Compressed natural gas and liquefied natural gas also may be low-carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles, are also considered as low-carbon fuels.

Senate Bill 97

Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR), which is part of the State Natural Resources Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Natural Resources Agency was required to certify and adopt those guidelines by January 1, 2010.

Pursuant to the requirements of SB 97 as stated above, on December 30, 2009 the Natural Resources Agency adopted amendments to the State CEQA guidelines that address GHG emissions. The CEQA Guidelines Amendments changed 14 sections of the CEQA Guidelines and incorporated GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance were provided and no specific mitigation measures were identified. The GHG emission reduction amendments went into effect on March 18, 2010 and are summarized below:

- Climate action plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the greenhouse gas emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.
- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
- New amendments include guidelines for determining methods to mitigate the effects of greenhouse gas emissions in Appendix F of the CEQA Guidelines.
- OPR is clear to state that "to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation."
- OPR's emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports (EIRs) must specifically consider a project's energy use and energy efficiency potential.

Senate Bill 375

Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or

alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

City and County land use policies, including General Plans, are not required to be consistent with the RTP and associated SCS or APS. However, new provisions of CEQA would incentivize, through streamlining and other provisions, qualified projects that are consistent with an approved SCS or APS and categorized as "transit priority projects."

Assembly Bill 341 and Senate Bills 939 and 1374

Senate Bill 939 (SB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills. Assembly Bill 341 (AB 341) was adopted in 2011 and builds upon the waste reduction measures of SB 939 and 1374, and sets a new target of a 75 percent reduction in solid waste generated by the year 2020.

California Code of Regulations (CCR) Title 24, Part 11

CCR Title 24, Part 11: *California Green Building Standards* (Title 24) was developed in response to continued efforts to reduce GHG emissions associated with energy consumption. The most current version is the 2013 California Green Building Standards Code (CalGreen), which became effective on January 1, 2014 and replaced the 2010 CalGreen. One focus of CCR Title 24, Part 11 is water conservation measures, which reduce GHG emissions by reducing electrical consumption associated with pumping and treating water. CCR Title 24, Part 11 has approximately 52 nonresidential mandatory measures and an additional 130 provisions for optional use. Some key mandatory measures for residential uses include a 20 percent reduction of potable water use within buildings through the use of low-flow faucets, outdoor water use is reduced through the use of smart irrigation system controllers, a 50 percent construction waste diversion from landfills, and use of building finish materials that emit low levels of volatile organic compounds.

Regional

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the South Coast Air Basin. To that end, as a regional agency, the SCAQMD works directly with the Southern California Association of Governments (SCAG), county transportation commissions, and local governments and cooperates actively with all federal and state agencies.

South Coast Air Quality Management District

SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emission sources, and enforces such measures through educational programs or fines, when necessary. SCAQMD is directly responsible for reducing emissions from stationary, mobile, and indirect sources. It has responded to this requirement by preparing a sequence of AQMPs. The *Final 2012 Air Quality Management Plan* (2012 AQMP) was adopted by the SCAQMD Board on December 7, 2012 and was adopted by CARB via Resolution 13-3 on January 25, 2013. The 2012 AQMP was prepared in order to meet the federal Clean Air Act requirement that all 24-hour PM2.5 non-attainment areas prepare a SIP,

that were required to be submitted to the U.S. EPA by December 14, 2012 and demonstrate attainment with the 24-hour PM2.5 standard by 2014. The 2012 AQMP demonstrates attainment of the federal 24-hour PM2.5 standard by 2014 in the Air Basin through adoption of all feasible measures, and therefore, no extension of the attainment date is needed.

The 2007 AQMP demonstrated attainment with the 1997 8-hour ozone (80 ppb) standard by 2023, through implementation of future improvements in control techniques and technologies. These "black box" emissions reductions represent 65 percent of the remaining NOx emission reductions by 2023 in order to show attainment with the 1997 8-hour ozone NAAQS. Given the magnitude of these needed emissions reductions, additional NOx control measures have been provided in this AQMP even though the primary purpose of this AQMP is to show compliance with 24-hour PM2.5 emissions standards.

The 2012 AQMP is designed to satisfy the California Clean Air Act's (CCAA) emission reductions of five percent per year or adoption of all feasible measures requirements and fulfill the EPA's requirement to update transportation conformity emissions budgets based on the latest approved motor vehicle emissions model and planning assumptions. The 2012 AQMP updates and revises the previous 2007 AQMP. The 2012 AQMP was prepared to comply with the Federal and State CCAA and amendments, to accommodate growth, to reduce the high pollutant levels in the Air Basin, to meet Federal and State ambient air quality standards, and to minimize the fiscal impact that pollution control measures have on the local economy. The purpose of the 2012 AQMP for the Air Basin is to set forth a comprehensive program that will lead this area into compliance with all federal and state air-quality planning requirements.

The 2012 AQMP builds upon the approaches taken in the 2007 AQMP for the attainment of federal PM and ozone standards, and highlights the significant amount of reductions needed and the need to engage in interagency coordinated planning of mobile sources to meet all of the federal criteria pollutant standards. Compared with the 2007 AQMP, the 2012 AQMP utilizes revised emissions inventory projections that use 2008 as the base year. On-road emissions are calculated using CARB EMFAC2011 emission factors and the transportation activity data provided by SCAG from their 2012 Regional Transportation Plan (2012 RTP). Off-road emissions were updated using CARB's 2011 In-Use Off-Road Fleet Inventory Model. Since the 2007 AQMP was finalized new area source categories such as LPG transmission losses, storage tank and pipeline cleaning and degassing, and architectural colorants, were created and included in the emissions inventories. Composting waste was revised and now includes the emissions from green waste composting covered under SCAQMD Rule 1133.3. The 2012 AQMP also includes analysis of several additional sources of GHG emissions such as landfills and could also assist in reaching the GHG target goals in the AB32 Scoping Plan.

The control measures in the 2012 AQMP consist of three components: 1) Basin-wide and episodic short-term PM2.5 measures; 2) Section 182(e)(5) implementation measures; and 3) Transportation control measures. Many of the control measures are not based on command and control regulations, but instead focus on incentives, outreach, and education to bring about emissions reductions through voluntary participation and behavioral changes. More broadly, a transition to zero- and near-zero emission technologies is necessary to meet 2023 and 2032 air quality standards and 2050 climate goals. Many of the same technologies will address both air quality and climate needs.

In June 2016, the SCAQMD released a draft of its forthcoming 2016 Air Quality Management Plan. The plan will develop integrated strategies and measures to meet the following standards:

- 8-hour Ozone (75 ppb) by 2032
- Annual PM2.5 (12 µg/m3) by 2021-2025
- 8-hour Ozone (80 ppb) by 2024 (updated from the 2007 and 2012 AQMPs)

- 1-hour Ozone (120 ppb) by 2023 (updated from the 2012 AQMP)
- 24-hour PM2.5 (35 µg/m3) by 2019 (updated from the 2012 AQMP)

Although SCAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate air quality issues associated with plans and new development projects throughout the Air Basin. Instead, this is controlled through local jurisdictions in accordance to the California Environmental Quality Act (CEQA). In order to assist local jurisdictions with air quality compliance issues the *CEQA Air Quality Handbook* (SCAQMD CEQA Handbook), prepared by SCAQMD, 1993, with the most current updates found at http://www.aqmd.gov/ceqa/hdbk.html, was developed in accordance with the projections and programs detailed in the AQMPs. The purpose of the SCAQMD CEQA Handbook is to assist Lead Agencies, as well as consultants, project proponents, and other interested parties in evaluating a proposed project's potential air quality impacts. Specifically, the SCAQMD CEQA Handbook explains the procedures that SCAQMD recommends be followed for the environmental review process required by CEQA. The SCAQMD CEQA Handbook provides direction on how to evaluate potential air quality impacts, how to determine whether these impacts are significant, and how to mitigate these impacts. The SCAQMD intends that by providing this guidance, the air quality impacts of plans and development proposals will be analyzed accurately and consistently throughout the Air Basin, and adverse impacts will be minimized.

In order to assist local agencies with direction on GHG emissions, the SCAQMD organized a working group as described below.

SCAQMD Working Group

Since neither CARB nor the OPR has developed GHG emissions threshold, the SCAQMD formed a Working Group to develop significance thresholds related to GHG emissions. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that either provides a quantitative annual thresholds of 3,500 $MTCO_2e$ for residential uses, 1,400 $MTCO_2e$ for commercial uses, and 3,000 $MTCO_2e$ for mixed uses. An alternative annual threshold of 3,000 $MTCO_2e$ for all land use types is also proposed.

Southern California Association of Governments

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the federally designated Metropolitan Planning Organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG has prepared the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), adopted April, 2016 and the *2015 Federal Transportation Improvement* Program (FTIP), adopted October 2013, which addresses regional development and growth forecasts. Although the RTP/SCS and FTIP are primarily planning documents for future transportation projects a key component of these plans are to integrate land use planning with transportation planning that promotes higher density infill development in close proximity to existing transit service. These plans form the basis for the land use and transportation components of the AQMP, which are utilized in the preparation of air quality forecasts and in the consistency analysis included in the AQMP. The RTP/SCS, FTIP, and AQMP are based on projections originating within the City and County General Plans.

Local

Local jurisdictions have the authority and responsibility to reduce air pollution through its police power and decision-making authority. Specifically, the local jurisdictions are responsible for the assessment and

mitigation of air emissions resulting from its land use decisions. The local jurisdictions are also responsible for the implementation of transportation control measures as outlined in the 2007 AQMP and 2012 AQMP. Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, the local jurisdictions assess the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

In accordance with the CEQA requirements, the local jurisdictions do not, however, have the expertise to develop plans, programs, procedures, and methodologies to ensure that air quality within the local jurisdiction and region will meet federal and state standards. Instead, the local jurisdictions rely on the expertise of the SCAQMD and utilizes the SCAQMD CEQA Handbook as the guidance document for the environmental review of plans and development proposals within its jurisdiction.

4.0 ATMOSPHERIC SETTING

4.1 Local Climate

The climate of western Riverside County, technically called an interior valley subclimate of the Southern California's Mediterranean-type climate, is characterized by hot dry summers, mild moist winters with infrequent rainfall, moderate afternoon breezes, and generally fair weather. Occasional periods of strong Santa Ana winds and winter storms interrupt the otherwise mild weather pattern. The clouds and fog that form along the area's coastline rarely extend as far inland as western Riverside County. When morning clouds and fog form, they typically burn off quickly after sunrise. The most important weather pattern from an air quality perspective is associated with the warm season airflow across the western more populated areas of the Air Basin. This airflow brings polluted air into western Riverside County late in the afternoon. This transport pattern creates unhealthful air quality that may extend to the project site particularly during the summer months.

Winds are an important parameter in characterizing the air quality environment of a project site because they both determine the regional pattern of air pollution transport and control the rate of dispersion near a source. Daytime winds in western Riverside County are usually light breezes from off the coast as air moves regionally onshore from the cool Pacific Ocean to the warm Mojave Desert interior of Southern California. These winds allow for good local mixing, but as discussed above, these coastal winds carry significant amounts of industrial and automobile air pollutants from the densely urbanized western portion of the Air Basin into the interior valleys which become trapped by the mountains that border the eastern edge of the Air Basin.

In the summer, strong temperature inversions may occur that limit the vertical depth through which air pollution can be dispersed. Air pollutants concentrate because they cannot rise through the inversion layer and disperse. These inversions are more common and persistent during the summer months. Over time, sunlight produces photochemical reactions within this inversion layer that creates ozone, a particularly harmful air pollutant. Occasionally, strong thermal convections occur which allows the air pollutants to rise high enough to pass over the mountains and ultimately dilute the smog cloud.

In the winter, light nocturnal winds result mainly from the drainage of cool air off of the mountains toward the valley floor while the air aloft over the valley remains warm. This forms a type of inversion known as a radiation inversion. Such winds are characterized by stagnation and poor local mixing and trap pollutants such as automobile exhaust near their source. While these inversions may lead to air pollution "hot spots" in heavily developed coastal areas of the Air Basin, there is not enough traffic in inland valleys to cause any winter air pollution problems. Despite light wind conditions, especially at night and in the early morning, winter is generally a period of good air quality in the project vicinity.

The temperature and precipitation levels for the Corona Monitoring Station, which is the closest monitoring station to the project study area is shown below in Table H. Table H shows that August is typically the warmest month and January is typically the coolest month. Rainfall in the project area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April, with summers being almost completely dry.

Table H – Monthly Climate Data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Max. Temperature	65.3	67.7	70.5	74.9	79.3	85.5	92.3	92.2	89.1	81.6	73.5	66.8
Average Min. Temperature	39.7	41.2	42.8	45.7	49.9	53.7	57.7	58.3	55.6	50.2	44.3	40.4
Average Total Precipitation (in.)	2.61	2.62	2.00	0.98	0.26	0.04	0.02	0.09	0.25	0.55	1.14	2.15

Source: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca2031

4.2 Monitored Local Air Quality

The air quality at any site is dependent on the regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the Air Basin. Estimates of the existing emissions in the Air Basin provided in the 2012 AQMP, indicate that collectively, mobile sources account for 59 percent of the VOC, 88 percent of the NOx emissions and 40 percent of directly emitted PM2.5, with another 10 percent of PM2.5 from road dust. The 2016 AQMP found that since 2012 AQMP projections were made stationary source VOC emissions have decreased by approximately 12 percent, but mobile VOC emissions have increased by 5 percent. The percentage of NOx emissions remain unchanged between the 2012 and 2016 projections.

SCAQMD has divided the Air Basin into 38 air-monitoring areas with a designated ambient air monitoring station representative of each area. The project site is located in air monitoring area 22, which covers the Corona/Norco Area. The nearest air monitoring station to the project site is the Mira Loma Van Buren Monitoring Station (Mira Loma Station), which is located at 5130 Poinsettia Place. Since historical concentrations of carbon monoxide were found to be well below state and federal limits throughout the Air Basin, SCAQMD discontinued monitoring carbon monoxide levels on March 31, 2013. It should also be noted that due to the air monitoring stations distances from the project site, recorded air pollution levels at the air monitoring stations, reflect with varying degrees of accuracy, local air quality conditions at the project site.

Table I presents the monitored pollutant levels from the Mira Loma Station. Table I shows that ozone and particulate matter (PM10 and PM2.5) are the air pollutants of primary concern in the project area, which are detailed below.

Ozone

During the last three years, the State 1-hour concentration standard for ozone has been exceeded between 17 and 34 days each year at the Mira Loma Station. The State 8-hour ozone standard has been exceeded between 51 and 70 days each year over the past three years at the Mira Loma Station. The Federal 8-hour ozone standard has been exceeded between 51 and 65 days each year over the past three years at the Mira Loma Station.

Ozone is a secondary pollutant as it is not directly emitted. Ozone is the result of chemical reactions between other pollutants, most importantly hydrocarbons and NO_2, which occur only in the presence of bright sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in the area. Many areas of Southern California contribute to the ozone levels experienced at this monitoring station, with the more significant areas being those directly upwind.

Table I – Local Area Air Quality Monitoring Summary

Pollutant (Standard)	Year[1] 2014	2015	2016
Ozone:			
Maximum 1-Hour Concentration (ppm)	0.138	0.127	0.140
Days > CAAQS (0.09 ppm)	**17**	**29**	**34**
Maximum 8-Hour Concentration (ppm)	0.102	0.104	0.106
Days > NAAQS (0.070 ppm)	**52**	**51**	**65**
Days > CAAQs (0.070 ppm)	**55**	**51**	**70**
Nitrogen Dioxide:			
Maximum 1-Hour Concentration (ppb)	57.7	68.1	64.9
Days > NAAQS (100 ppb)	0	0	0
Inhalable Particulates (PM10):			
Maximum 24-Hour Concentration (ug/m^3)	85.0	112.0	88.0
Days > NAAQS (150 ug/m^3)	0	0	0
Days > CAAQS (50 ug/m^3)	**15**	**20**	ND
Annual Arithmetic Mean (AAM) (ug/m^3)	42.9	48.1	37.5
Annual > NAAQS (50 ug/m^3)	No	No	No
Annual > CAAQS (20 ug/m^3)	**Yes**	**Yes**	**Yes**
Ultra-Fine Particulates (PM2.5):			
Maximum 24-Hour National Measurement (ug/m^3)	73.6	56.6	45.6
Days > NAAQS (35 ug/m^3)	**9**	**17**	**2**
Annual Arithmetic Mean (AAM) (ug/m^3)	14.6	14.1	ND
Annual > NAAQS and CAAQS (12 ug/m^3)	**Yes**	**Yes**	ND

Notes: Exceedances are listed in **bold.** CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million; ppb = parts per billion; ND = no data available.
[1] Data obtained from Mira Loma Station.
Source: http://www.arb.ca.gov/adam/

Nitrogen Dioxide

The Mira Loma Station did not record an exceedance of the Federal 1-hour NO_2 standard for the last three years.

Particulate Matter

The State 24-hour concentration standard for PM10 has been exceeded between 15 and 20 days each year over the past three years at the Mira Loma Station. Over the past three years the Federal 24-hour standard for PM10 has not been exceeded at the Mira Loma Station. The annual PM10 concentration at the Mira Loma Station has exceeded the State standard for the past three years and has not exceeded the Federal standard for the past three years.

Over the past three years the 24-hour concentration standard for PM2.5 has been exceeded between 2 and 17 days each year over the past three years at the Mira Loma Station. The annual PM2.5 concentration at

the Mira Loma Station has exceeded the State and Federal standard for two of the past three years. There does not appear to be a noticeable trend for PM10 or PM2.5 in either maximum particulate concentrations or days of exceedances in the area. Particulate levels in the area are due to natural sources, grading operations, and motor vehicles.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM10 and PM2.5). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM10 and PM2.5. Other groups considered sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive, because many breathe through their mouths during exercise.

4.3 Toxic Air Contaminant Levels in the Air Basin

In order to determine the Air Basin-wide risks associated with major airborne carcinogens, the SCAQMD conducted the Multiple Air Toxics Exposure Study (MATES) studies. According to the SCAQMD's MATES-IV study, the project study area has an estimated cancer risk of 1021 per million chance of cancer. In comparison, the average cancer risk for the Air Basin in 991 per million persons, which is based on the use of age-sensitivity factors detailed in the OEHHA Guidelines (OEHHA, 2015). The higher level of risk is primarily due to the project site's proximity to the Metrolink railroad line and Interstate 91.

In order to provide a perspective of risk, it is often estimated that the incidence in cancer over a lifetime for the U.S. population ranges between 1 in 3 to 4 and 1 in 3, or a risk of about 300,000 per million persons. The MATES-III study referenced a Harvard Report on Cancer Prevention, which estimated that of cancers associated with known risk factors, about 30 percent were related to tobacco, about 30 percent were related to diet and obesity, and about 2 percent were associated with environmental pollution related exposures that includes hazardous air pollutants.

5.0 MODELING PARAMETERS AND ASSUMPTIONS

5.1 CalEEMod Model

The regional criteria air pollution and GHG emissions impacts created by the proposed project's off-road equipment and on-road staff and haul truck have been analyzed through use of CalEEMod Version 2016.3.1. CalEEMod Version 2016.3.2 has recently been released, however the emissions rates for off-road equipment and on-road vehicles were cross-referenced between Versions 2016.3.1 and 2016.3.2 and the results were the same, so the CalEEMod model was not re-run for Version 2016.3.2. CalEEMod is a computer model published by the SCAQMD for estimating air pollutant emissions. The CalEEMod program uses the EMFAC2014 computer program to calculate the emission rates specific for the South Coast Air Basin for construction-related employee, vendor and haul truck vehicle trips and the OFFROAD2011 computer program to calculate emission rates for heavy equipment operations. EMFAC2014 and OFFROAD2011 are computer programs generated by CARB that calculates composite emission rates for vehicles. Emission rates are reported by the program in grams per trip and grams per mile or grams per running hour.

Off-Road Equipment

Since the proposed project consists of three alternatives that would utilize off-road equipment and the initial construction activities would occur over five years and periodic maintenance occurring for 45 years thereafter with several different combinations of off-road equipment, the CalEEMod model was utilized to calculate each piece of off-road equipment individually. For each piece of off-road equipment the CalEEMod model was set to one acre of User Defined Industrial with a six year grading period from 2021 to 2027. The grading phase construction equipment was set to the piece of off-road equipment being analyzed with the horsepower provided by the applicant and set to one hour of operation in order to calculate hourly emission rates for each piece of equipment. The mitigation of water exposed areas three times per day was selected to account for the SCAQMD Rule 403 minimum requirements that requires watering of all exposed areas during earthmoving activities. In order to account for the emissions reductions associated with Environmental Commitment 1, the CalEEMod model runs included mitigation of Tier 4 Final Engines. The off-road equipment model runs are provided in Appendix A.

The hourly CalEEMod model emission rates calculated for each piece of off-road equipment was then entered into a spreadsheet sheet, where the daily and annual emissions were calculated for each Alternative through multiplying the maximum daily or annual hours for each piece of off-road equipment's emission rates for VOC, NOx, CO, SO_2, PM10, PM2.5, CO_2, CH_4, and CO_2e. The spreadsheet calculations for Alternative 2 is provided in Appendix B, for Alternative 3 is provided in Appendix C, and for Alternative 4 is provided in Appendix D.

On-Road Staff and Haul Truck Trips

The on-road staff and haul truck trips criteria air pollution and GHG emissions impacts created by the proposed project have also been analyzed through use of the CalEEMod model and the EMFAC 2014 model. The CalEEMod model calculates on-road emissions from vehicle start-up, running and idling exhaust, tire and brake ware, and road dust, so it provides more comprehensive emission modeling than what would occur from utilizing the EMFAC2014 model directly.

The staff or worker trips were analyzed through use of the same CalEEMod model runs performed for the off-road equipment (see Appendix A) with the worker trips under the Construction tab set to one worker trip per day and the distance was set to 10 miles in length. The calculated worker trips emissions were multiplied by 1.5 in order to obtain the emissions from one worker trip that is an average length of 15 miles as detailed in the Traffic Impact Analysis (Kunzman Associates, 2018).

In order to calculate the haul truck trip emissions with implementation of Environmental Commitment 2 that requires all haul trucks to meet or exceed the model year 2010 (Tier 4 Final) emissions standards, the EMFAC2014 model was run for Heavy-Heavy Duty (HHD) model trucks in Southern California traveling at 40 miles per hour, which are the same parameters utilized in the CalEEMod model. However, the EMFAC2014 model run was limited to the 2010 to 2021 HHD truck model years that were averaged together in order to calculate the emission rates in grams per second for HHD trucks with implementation of Environmental Commitment 2. The EMFAC 2014 model run is provided in Appendix E.

The haul truck trips were analyzed with separate CalEEMod model runs for years 2021 through 2026. The haul truck trip model runs utilized the same land use parameters at the off-road equipment model runs, with the operational mobile daily trips set to 1 trip per day and a trip length of 14.8 miles which is the shortest haul truck trip listed in the Traffic Impact Analysis (Kunzman Associates, 2018). The Fleet Mix was also changed to 100 percent Heavy-Heavy Duty (HHD) truck classification. The CalEEMod model runs for the haul truck trips is provided in Appendix F.

The calculated haul truck emission rates with implementation of Environmental Commitment 2 was entered into a spreadsheet sheet, where the daily and annual emissions for VOC, NOx, CO, SO_2, PM10, PM2.5, CO_2, CH_4, and CO_2e were calculated for each Alternative through multiplying the emission rates by the maximum worker and haul truck miles driven for daily and annual conditions. The spreadsheet calculations for the worker and haul truck trips is provided in Appendix G.

5.2 AERMOD Model

The TAC and criteria pollutant dispersion modeling utilized in this analysis has been based on the recommended methodology provided by the SCAQMD (2003) and OEHHA (2015). Since most of the proposed project's activities would occur greater than a quarter mile from sensitive receptors, the dispersion modeling has been limited to the SARM Upstream Focal Area from the River Road Bridge to the Sediment Trap. This area was chosen since it is the location where diesel equipment would operate in the closest proximity to residential uses that are located as near as 220 feet from the proposed diesel equipment operations.

Model Selection

Lakes Environmental's AERMOD View Version 9.5.0 Model running the AERMOD dispersion model was used for all dispersion modeling. Key dispersion modeling options selected include the regulatory default option and urban modeling option for Riverside County with a population of 2,100,516. Flagpole receptor height was set to 0 meters. AERMAP was run with the 7.5 minute USGS DEM Map of Corona North.

Meteorological Data

Meteorological data from the SCAQMD's Pomona monitoring site was selected for this modeling application, which is the nearest site available to the project site. Five full years of meteorological data was collected at the Pomona Station and included 2008, 2009, 2010, 2011, and 2012 by the SCAQMD. The SCAQMD processed the data for input to the model. The base elevation for the meteorological tower was set to 270 meters and the UTM coordinates were set to 430.78 km Easting and 3769.61 km Northing. The data was obtained at SCAQMD's http://www.aqmd.gov/home/library/air-quality-data-studies/meteorological-data/data-for-aermod

Receptor Grid

The nearest sensitive receptors that may be impacted by the proposed project are single-family homes on Kendra Lane that are located as near as 220 feet from the proposed diesel equipment operations in the

SARM Upstream Focal Area. Discrete receptors were placed at 17 representative sensitive receptors located on both the northwest and southeast sides of the Santa Ana River. Figure 3 shows the locations of the receptors modeled in the AERMOD model.

TAC Emissions Assumptions

Construction of the proposed project would require the use of diesel-powered construction equipment, which is a known source of TAC emissions. The equipment operating in the local study area would include: (1) Sediment Management Channel Trap (SU-1A); (2) Invasive Plant Management (SU-2); Riparian Edge Habitat Management (SU-3); (3) Feral Pig Management (SU-4); (4) In Stream Habitat Management (SU-5); (5) Non-Native Aquatic Species Management (SU-6); and (6) Cow Bird Trapping (SU-7). The maximum daily and annual hourly emissions for each piece of equipment that would operate in the local study area is shown in Table J for the average of combined years 1 and 2 and the combined years 3 to 30 (the years were combined in order to calculated the cancer risks based on age-sensitivity factors).

Table J – Local Study Area Off-Road Equipment Hours of Operation

	Combined Years 1 and 2 Hours		Combined Years 3 to 30 Hours[1]	
Off-Road Equipment	**Maximum Daily**	**Annual Average**	**Maximum Daily**	**Annual Average**
Pickup Truck	43.1	7,348.0	43.1	5,235.2
Water Truck	31.3	5,100.0	31.3	4,075.2
Backhoe Loader	9.0	2,136.0	9.0	1,077.6
Wheel Loader (5 yard)	21.3	4,272.0	25.2	5,707.1
All Terrain Forklift	7.4	160.0	7.4	309.3
Tub Grinder or Chipper	12.5	1,132.0	12.5	317.1
Tracked Skid Loader	23.2	3,156.0	23.2	2,225.7
Tracked Excavator	39.4	7,260.0	41.8	7,808.1
Bulldozer	24.3	4,368.0	24.3	3,057.5
Scraper (25 cubic yard)	58.1	7,577.2	58.1	4,781.9
Compactor (Pad Foot)	14.7	2,160.0	14.7	648.0
Motor Grader	7.4	1,920.0	7.4	1,920.0
Ag Tractor Mower	4.8	516.0	4.8	325.6
Welder/Service/Lube Truck	10.3	2,016.0	10.3	1,926.4
Crane	5.9	256.0	5.9	264.5
Dredges	3.1	101.9	17.9	1,237.5
Booster Pumps	40.3	1,313.6	53.7	3,779.6
Utility Boat (Gas Engine)	7.4	240.0	7.4	912.0

Notes:
[1] Although the project duration is 50 years, the OEHHA Guidelines recommend the cancer risk at residential uses over a 30 year period, which was utilized in this analysis.
Source: Scheevel Engineering

The equipment hours provided in Table J were multiplied by the CalEEMod model off-road equipment rates with implementation of Environmental Commitment 1 that are provided in Appendix A. This resulted in average daily PM10 exhaust emission rates of 0.30 pounds per day for the combined years and 1 and 2 and 0.31 pounds per day for the combined years 3 to 30.

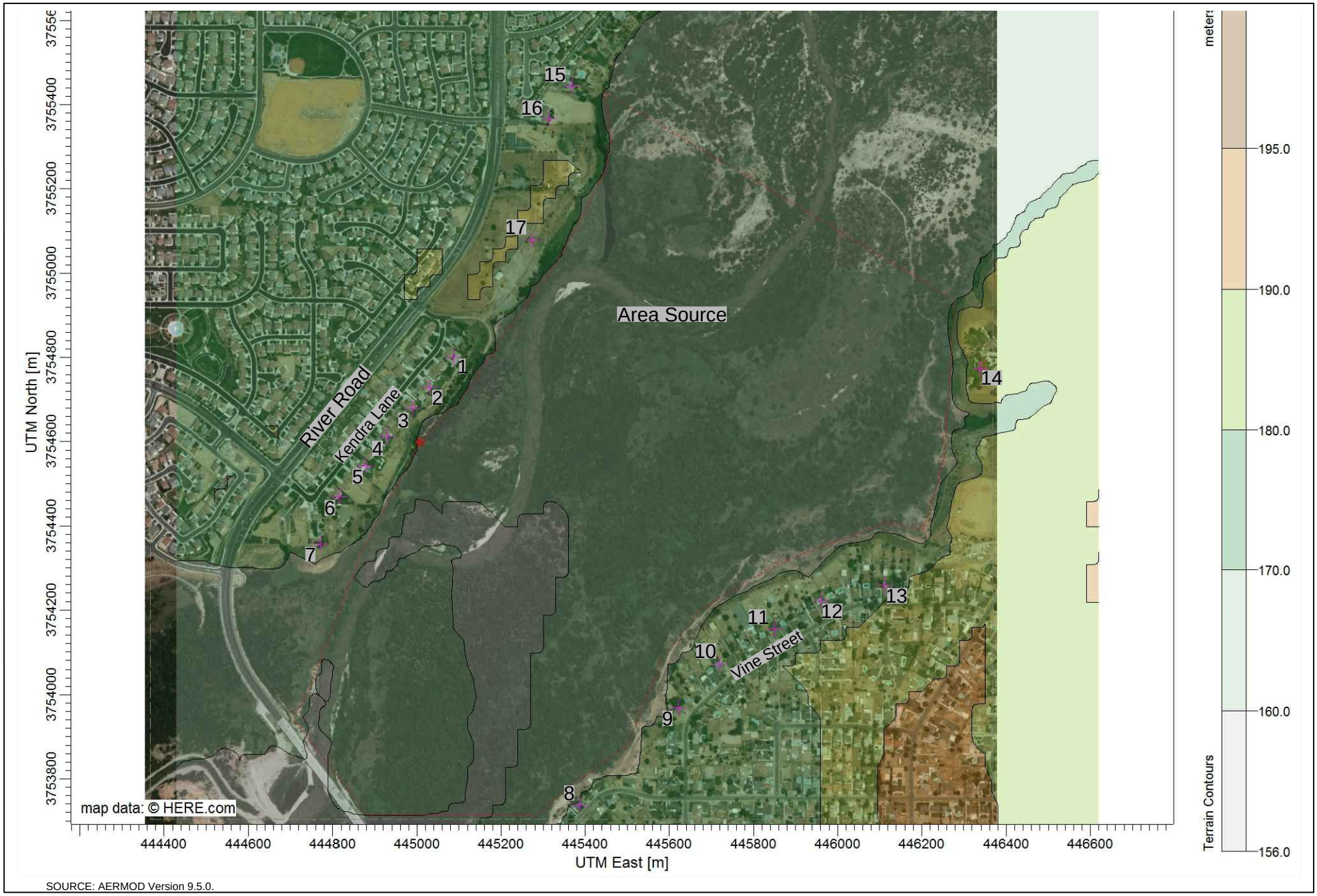
The off-road equipment PM10 exhaust emissions were analyzed in the AERMOD model as a 1,420,758 square meter (351 acre) area source with a release height of 13 feet, and an initial vertical dimension of the plume of 39 feet. The emission rate was calculated by converting the 0.30 and 0.31 pound per day to

grams per second based on a 9-hour workday (7 a.m. to 3 p.m.) and then dividing by 1,420,758 square meters, which results in emission rates of 2.94E-09 grams per second for years 1 and 2 and 3.06E-09 grams per second for years 3 to 30. Figure 3 shows the location of the area source.

Localized Criteria Pollutant Assumptions

Implementation of the proposed project would require the use of diesel-powered construction equipment, which emits NOx, CO PM10 and PM2.5. In addition, the moving of dirt and vehicles driving on dirt roads would create fugitive dust emissions that consist of PM10 and PM2.5. The maximum daily criteria pollutant emission rates with implementation of Environmental Commitments 1 and 2 were calculated for the worst-case year of the proposed project that were obtained through utilization of the same methodology detailed above for the TAC emissions calculations. This resulted in maximum daily emission rates of 33.28 pounds of NOx, 237.27 pounds of CO, 14.26 pounds of PM10 and 8.18 pounds of PM2.5.

The localized criteria pollutants were analyzed in the AERMOD model based on the same area source parameters detailed above the TAC emissions analysis that resulted in emission rates of 3.28E-07 grams per second for NOx, 2.34E-06 grams per second for CO, 1.41E-07 grams per second for PM10, and 8.07E-08 grams per second for PM2.5.



SOURCE: AERMOD Version 9.5.0.

N

VISTA ENVIRONMENTAL

Figure 3
Air Dispersion Model Emission Sources and Receptor Locations

6.0 THRESHOLDS OF SIGNIFICANCE

6.1 Regional Air Quality

Many air quality impacts that derive from dispersed mobile sources, which are the dominate pollution generators in the Air Basin, often occurs hours later and miles away after photochemical processes have converted primary exhaust pollutants into secondary contaminants such as ozone. The incremental regional air quality impact of an individual project is generally very small and difficult to measure. Therefore, SCAQMD has developed significance thresholds based on the volume of pollution emitted rather than on actual ambient air quality because the direct air quality impact of a project is not quantifiable on a regional scale. The SCAQMD CEQA Handbook states that any project in the Air Basin with daily emissions that exceed any of the identified significance thresholds should be considered as having an individually and cumulatively significant air quality impact. For the purposes to this air quality impact analysis, a regional air quality impact would be considered significant if emissions exceed the SCAQMD significance thresholds identified in Table K.

Table K – SCAQMD Regional Criteria Pollutant Emission Thresholds of Significance

	Pollutant Emissions (pounds/day)						
	VOC	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**	**Lead**
Construction	75	100	550	150	150	55	3
Operation	55	55	550	150	150	55	3

Source: http://www.aqmd.gov/ceqa/handbook/signthres.pdf

General Conformity

The EPA established the General Conformity Rule on November 30, 1993. The rule implements the CAA conformity provision, which mandates that the Federal government not engage, support, or provide financial assistance for licensing or permitting, or approve any activity not conforming to an approved CAA implementation plan. The purpose of the General Conformity Rule was to ensure that Federal activities do not hamper local efforts to control air pollution. The total quantified emissions of nonattainment or maintenance pollutants from both direct and indirect sources is compared to rates listed in Title 40, Part 51, Section 51.853(b), considered the de minimis levels, where, if they are determined to exceed those levels, the Federal agency is required to conduct a Conformity Determination.

Since all activities are located within the South Coast Air Basin, the *de minimis* levels are based on attainment designations/classifications in the Air Basin. Table L shows the General Conformity *de minimis* levels.

Table L – General Conformity De Minimis Levels

Criteria Pollutant	NAAQS Designation	De Minimis Levels (Tons/Year)
Ozone (VOC or NOx)	Nonattainment (Extreme)	10
CO	Maintenance	100
NO_2	Maintenance	100
SO_2	Maintenance	100
PM10	Maintenance	100
PM2.5	Nonattainment	100

Source: https://www.epa.gov/general-conformity/de-minimis-emission-levels

6.2 Local Air Quality

In order to assess localized air quality impacts, the SCAQMD has developed Localized Significant Thresholds (LSTs) to assess the project-related air emissions in the project vicinity. SCAQMD has also provided Final Localized Significance Threshold Methodology (SCAQMD 2008), which details the methodology to analyze local air emission impacts. The LST Methodology found that the primary emissions of concern are NO2, CO, PM10, and PM2.5.

The significance thresholds for the local emissions of NO_2 and CO are determined by subtracting the highest background concentration from the last 3 years of these pollutants from Table I above, from the most restrictive ambient air quality standards for these pollutants that are outlined in the LSTs. Since PM10 and PM2.5 currently exceed the most restrictive ambient air quality standards in the South Coast Air Basin, their thresholds have been directly based on the LSTs, and, therefore, background concentrations of PM10 and PM2.5 are not factored into the threshold. Table E shows the LSTs for NO_2, CO, and PM10 and PM2.5.

Table M – SCAQMD Localized Criteria Pollutant Thresholds of Significance

Pollutant	Averaging Time	Significance Threshold[1]
Carbon Monoxide	1-hour	20 ppm
	8-hour	9 ppm
Nitrogen Dioxide	1-hour	180 ppb
	Annual	30 ppb
PM10	24-hour - Construction	10.4 µg/m^3
	24 hour – Operation	2.5 µg/m^3
	Annual	1.0 µg/m^3
PM2.5	24-hour - Construction	10.4 µg/m^3
	24 hour – Operation	2.5 µg/m^3

Notes:
[1] For CO and NO_2 the significance threshold is based on ambient plus project conditions. For PM10 and PM2.5 the significance threshold is based on project only concentrations
Source: SCAQMD; website: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2

6.3 Toxic Air Contaminants

According to the SCAQMD CEQA Handbook, any project that has the potential to expose the public to toxic air contaminants (TAC) or Hazardous Air Pollutants (HAP) in excess of the following thresholds would be considered to have a significant air quality impact:

- If the Maximum Incremental Cancer Risk is 10 in one million or greater; or
- Toxic air contaminants from the proposed project would result in a Hazard Index increase of 1 or greater.

In order to determine if the proposed project may have a significant impact related to TACs or HAPs, the *Health Risk Assessment Guidance for analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis*, (Diesel Analysis) prepared by SCAQMD, August 2003, recommends that if the proposed project is anticipated to create HAPs through stationary sources or regular operations of diesel trucks on the project site, then the proximity of the nearest receptors to the source of the HAP and the toxicity of the HAP should be analyzed through a comprehensive facility-wide health risk assessment (HRA).

6.4 Odor Impacts

The SCAQMD CEQA Handbook states that an odor impact would occur if the proposed project creates an odor nuisance pursuant to SCAQMD Rule 402, which states:

> "A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.
>
> The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals."

If the proposed project results in a violation of Rule 402 with regards to odor impacts, then the proposed project would create a significant odor impact.

6.5 Greenhouse Gases

The proposed project is located within the jurisdiction of the SCAQMD. In order to identify significance criteria under CEQA for development projects, SCAQMD initiated a Working Group, which provided detailed methodology for evaluating significance under CEQA. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that provides a quantitative annual threshold of 3,000 $MTCO_2e$ for all land use projects. Although the SCAQMD provided substantial evidence supporting the use of the above threshold, as of May 2017, the SCAQMD Board has not yet considered or approved the Working Group's thresholds. Originally SCAQMD had stated that they were waiting to approve the Working Group's thresholds dependent on the outcome of the State Supreme Court decision of the California Building Industry Association v. Bay Area Air Quality Management District (BAAQMD), which was filed on December 17, 2015. However, since that court decision has been decided for some time now, the most likely time for the SCAQMD Board to consider the Working Group thresholds will be in combination with the consideration of the updated CEQA Air Quality Handbook that is currently being revised by SCAQMD staff. In order to provide a conservative analysis, the Working Group's draft thresholds have been utilized. Therefore, the proposed project would be considered to create a significant cumulative GHG impact if the proposed project would exceed the annual threshold of 3,000 $MTCO_2e$.

7.0 PROJECT IMPACTS

7.1 Regional Air Quality Impacts

The EMFAC2014 and CalEEMod models have been utilized to calculate the regional criteria pollutant emissions from Alternatives 2, 3, and 4, through utilization of the CalEEMod model and the methodology provided above in Section 5.1. The regional air quality impacts from each Alternative has been analyzed separately below.

Alternative 2 (Plan 11 Proposed Alternative) Regional Air Quality Impacts

Table N shows the worst-case summer or winter daily criteria pollution emissions that would be created from implementation of Alternative 2, for each year of activities and Table O shows the regional annual criteria pollutants in tons per year for conformity purposes. Table N and Table O were calculated based on implementation of Environmental Commitment 1 that requires all diesel-powered off-road equipment utilized as part of implementation of Proposed Alternative 2 to meet Tier 4 Final emission standards. The tables were also calculated based on implementation of Environmental Commitment 2 that requires all haul trucks utilized as part of implementation of Proposed Alternative 2 to meet the Model Year 2010 (Tier 4 Final) or newer emission standards. The Alternative 2 emissions have been calculated through use of the EMFAC2014 and CalEEMod models and the methodology detailed in Section 5.1.

Table N – Alternative 2 Daily Regional Criteria Pollutant Emissions

	Pollutant Emissions (pounds/day)					
Activity	**VOC**	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**
Year 1 (2021)						
On-Site[1]	4.66	20.17	174.73	0.38	11.24	6.44
Off-Site[2]	2.64	19.44	21.00	0.12	6.60	1.81
Year 1 Total	7.29	39.60	195.74	0.50	17.84	8.26
Year 2 (2022)						
On-Site	7.74	41.33	300.75	0.63	21.68	12.36
Off-Site	7.26	56.28	57.80	0.36	19.75	5.42
Total	15.01	97.60	358.56	0.99	41.43	17.78
Year 3 (2023)						
On-Site	8.36	79.07	342.63	0.70	22.98	13.18
Off-Site	2.00	15.18	15.88	0.11	5.93	1.63
Year 3 Total	10.36	94.25	358.50	0.81	28.91	14.81
Year 4 (2024)						
On-Site	6.15	68.96	258.23	0.51	13.70	7.95
Off-Site	4.00	25.91	31.62	0.20	12.24	3.35
Year 4 Total	10.15	94.87	289.85	0.72	25.94	11.31
Year 5 (2025)						
On-Site	6.25	69.37	261.92	0.52	14.50	8.40
Off-Site	3.31	31.65	25.57	0.22	10.86	2.99
Year 5 Total	9.56	**101.03**	287.48	0.74	25.35	11.39
SCAQMD Construction Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Construction Thresholds?	No	**Yes**	No	No	No	No
Years 6 - 50 (2026+)						
On-Site	5.44	65.90	231.06	0.46	11.71	6.82
Off-Site	2.38	28.50	16.24	0.18	7.84	2.17

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Years 6 - 50 Total	7.83	**94.40**	247.30	0.64	19.55	8.99
SCAQMD Operational Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
Exceeds Thresholds?	No	**Yes**	No	No	No	No

Notes:
Bold and Underlined represent a significant impact
[1] Onsite emissions from equipment not operated on public roads.
[2] Offsite emissions from vehicles operating on public roads.
Source: CalEEMod.

Table O – Alternative 2 Annual Regional Criteria Pollutant Emissions

Activity	Pollutant Emissions (Tons/year)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Year 1 (2021)						
On-Site[1]	0.38	1.67	14.48	0.03	1.29	0.73
Off-Site[2]	0.23	1.91	1.85	0.01	0.59	0.16
Year 1 Total	0.62	3.57	16.33	0.04	1.87	0.89
Year 2 (2022)						
On-Site	0.51	2.46	19.47	0.04	1.68	0.95
Off-Site	0.61	4.10	4.88	0.03	1.65	0.45
Total	1.12	6.56	24.35	0.07	3.33	1.40
Year 3 (2023)						
On-Site	0.57	4.06	22.33	0.05	1.98	1.13
Off-Site	0.19	1.92	1.48	0.01	0.57	0.16
Year 3 Total	0.75	5.97	23.81	0.06	2.56	1.28
Year 4 (2024)						
On-Site	0.45	3.53	17.79	0.04	1.50	0.85
Off-Site	0.32	2.14	2.56	0.02	0.99	0.27
Year 4 Total	0.77	5.66	20.35	0.05	2.50	1.13
Year 5 (2025)						
On-Site	0.44	3.49	17.50	0.04	1.56	0.89
Off-Site	0.25	2.18	1.97	0.02	0.83	0.23
Year 5 Total	0.69	5.67	19.47	0.05	2.39	1.11
Years 6 - 50 (2026+)						
On-Site	0.38	3.24	15.27	0.03	1.38	0.78
Off-Site	0.22	1.95	1.45	0.01	0.69	0.19
Years 6 - 50 Total	0.60	5.19	16.72	0.05	2.07	0.97
***De minimis level*[3]**	**10**	**10**	**100**	**100**	**100**	**100**
Significant?	No	No	No	No	No	No

Notes:
Bold and Underlined represent a significant impact
[1] Onsite emissions from equipment not operated on public roads.
[2] Offsite emissions from vehicles operating on public roads.
[3] General conformity *de minimis levels* https://www.epa.gov/general-conformity/de-minimis-emission-levels
Source: CalEEMod.

Table N shows that with implementation of Environmental Commitments 1 and 2 that the VOC, CO, SO_2, PM10 and PM2.5 daily emissions for years 1 through 5 and NOx daily emissions for years 1 through 4 would be within the SCAQMD's construction thresholds. Table N also shows that VOC, CO, SO_2, PM10

and PM2.5 daily emissions for years 6 through 50 would be within the SCAQMD's operational thresholds. However Year 5 would still exceed SCAQMD's daily NOx construction thresholds and Years 6 through 50 would still exceed SCAQMD's NOx operational thresholds. Since no additional feasible environmental commitments is available to reduce NOx emissions to less than significant levels, implementation of Alternative 2 would result in a significant unavoidable regional air quality impact.

Table O shows that with implementation of Environmental Commitments 1 and 2 no General Conformity *de minimis* thresholds are exceeded for Alternative 2 and the preparation of a General Conformity Determination is not required for the implementation of Alternative 2.

Alternative 3 (Plan 9) Regional Air Quality Impacts

Table P shows the worst-case summer or winter daily criteria pollution emissions that would be created from implementation of Alternative 3, for each year of activities and Table Q shows the regional annual criteria pollutants in tons per year for conformity purposes. Table P and Table Q were calculated based on implementation of Environmental Commitment 1 that requires all diesel-powered off-road equipment utilized as part of implementation of Proposed Alternative 3 to meet Tier 4 Final emission standards. The tables were also calculated based on implementation of Environmental Commitment 2 that requires all haul trucks utilized as part of implementation of Proposed Alternative 3 to meet the Model Year 2010 (Tier 4 Final) or newer emission standards. The Alternative 3 emissions have been calculated through use of the EMFAC2014 and CalEEMod models and the methodology detailed in Section 5.1.

Table P – Alternative 3 Daily Regional Criteria Pollutant Emissions

	Pollutant Emissions (pounds/day)					
Activity	**VOC**	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**
Year 1 (2021)						
On-Site[1]	2.46	10.64	92.70	0.20	8.77	4.96
Off-Site[2]	2.15	4.23	17.85	0.06	5.22	1.41
Year 1 Total	4.60	14.87	110.55	0.26	14.00	6.38
Year 2 (2022)						
On-Site	9.65	41.79	370.30	0.79	27.18	15.48
Off-Site	3.22	5.51	26.45	0.09	8.36	2.26
Total	12.87	47.30	396.76	0.88	35.53	17.74
Year 3 (2023)						
On-Site	11.02	47.73	425.98	0.90	59.17	33.14
Off-Site	3.88	10.01	31.35	0.13	10.90	2.96
Year 3 Total	14.90	57.74	457.34	1.03	70.07	36.10
Year 4 (2024)						
On-Site	5.28	22.88	203.86	0.43	19.22	10.86
Off-Site	3.46	9.90	27.61	0.12	10.25	2.79
Year 4 Total	8.74	32.78	231.47	0.56	29.47	13.64
Year 5 (2025)						
On-Site	6.42	27.81	246.87	0.52	25.13	14.17
Off-Site	2.73	16.49	21.27	0.14	8.73	2.39
Year 5 Total	9.16	44.30	268.14	0.67	33.86	16.56
SCAQMD Construction Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Construction Thresholds?	No	No	No	No	No	No
Years 6 - 50 (2026+)						
On-Site	2.91	12.62	112.07	0.24	13.75	7.72

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Off-Site	1.83	14.26	12.23	0.10	5.79	1.59
Years 6 - 50 Total	2.91	12.62	112.07	0.24	13.75	7.72
SCAQMD Operational Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
Exceeds Operational Thresholds?	No	No	No	No	No	No

Notes:
Bold and Underlined represent a significant impact
[1] Onsite emissions from equipment not operated on public roads.
[2] Offsite emissions from vehicles operating on public roads.
Source: CalEEMod.

Table Q – Alternative 3 Annual Regional Criteria Pollutant Emissions

Activity	Pollutant Emissions (Tons/year)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Year 1 (2021)						
On-Site[1]	0.53	4.80	3.00	0.01	1.61	0.96
Off-Site[2]	0.19	0.63	1.60	0.01	0.46	0.13
Year 1 Total	0.73	5.43	4.60	0.01	2.07	1.08
Year 2 (2022)						
On-Site	0.36	3.24	2.54	0.01	1.55	0.90
Off-Site	0.29	0.73	2.38	0.01	0.74	0.20
Total	0.65	3.98	4.92	0.02	2.29	1.10
Year 3 (2023)						
On-Site	0.43	3.86	3.14	0.01	3.22	1.83
Off-Site	0.33	1.16	2.80	0.01	0.93	0.25
Year 3 Total	0.77	5.02	5.94	0.02	4.15	2.08
Year 4 (2024)						
On-Site	0.24	1.95	1.77	0.01	1.19	0.68
Off-Site	0.27	0.56	2.22	0.01	0.79	0.22
Year 4 Total	0.51	2.51	3.99	0.01	1.99	0.90
Year 5 (2025)						
On-Site	0.08	0.34	3.01	0.01	0.26	0.15
Off-Site	0.20	0.77	1.65	0.01	0.62	0.17
Year 5 Total	0.28	1.10	4.66	0.01	0.88	0.31
Years 6 - 50 (2026+)						
On-Site	0.07	0.57	0.55	0.00	0.45	0.26
Off-Site	0.16	0.65	1.09	0.01	0.47	0.13
Years 6 - 50 Total	0.23	1.22	1.64	0.01	0.92	0.38
***De minimis level*[3]**	**10**	**10**	**100**	**100**	**100**	**100**
Significant?	No	No	No	No	No	No

Notes:
Bold and Underlined represent a significant impact
[1] Onsite emissions from equipment not operated on public roads.
[2] Offsite emissions from vehicles operating on public roads.
[3] General conformity *de minimis levels* https://www.epa.gov/general-conformity/de-minimis-emission-levels
Source: CalEEMod.

Table P shows that with implementation of Environmental Commitments 1 and 2, none of the analyzed criteria pollutants would exceed the SCAQMD's daily construction and operational emissions thresholds.

Therefore, with implementation of Environmental Commitments 1 and 2 a less than significant regional air quality impact would from implementation of Alternative 3.

Table Q shows that no General Conformity *de minimis* thresholds are exceeded for Alternative 3 and the preparation of a General Conformity Determination is not required for the implementation of Alternative 3.

Alternative 4 (Plan 14) Regional Air Quality Impacts

Table R shows the worst-case summer or winter daily criteria pollution emissions that would be created from implementation of Alternative 4, for each year of activities and Table S shows the regional annual criteria pollutants in tons per year for conformity purposes. Table R and Table S were calculated based on implementation of Environmental Commitment 1 that requires all diesel-powered off-road equipment utilized as part of implementation of Proposed Alternative 4 to meet Tier 4 Final emission standards. The tables were also calculated based on implementation of Environmental Commitment 2 that requires all haul trucks utilized as part of implementation of Proposed Alternative 4 to meet the Model Year 2010 (Tier 4 Final) or newer emission standards. The Alternative 4 emissions have been calculated through use of the EMFAC2014 and CalEEMod models and the methodology detailed in Section 5.1.

Table R – Alternative 4 Daily Regional Criteria Pollutant Emissions

	Pollutant Emissions (pounds/day)					
Activity	**VOC**	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**
Year 1 (2021)						
On-Site[1]	4.75	20.57	178.32	0.39	11.26	6.46
Off-Site[2]	2.55	16.04	20.50	0.11	6.35	1.74
Year 1 Total	7.30	36.62	198.81	0.49	17.61	8.20
Year 2 (2022)						
On-Site	8.63	45.16	341.92	0.71	25.26	14.38
Off-Site	7.18	92.07	55.59	0.48	20.28	5.61
Total	15.81	**137.23**	397.51	1.20	45.54	20.00
Year 3 (2023)						
On-Site	8.46	79.48	346.18	0.70	23.00	13.20
Off-Site	2.07	17.11	16.40	0.12	6.18	1.70
Year 3 Total	10.53	96.58	362.58	0.82	29.18	14.90
Year 4 (2024)						
On-Site	6.24	69.37	261.78	0.52	13.71	7.97
Off-Site	4.02	26.20	31.78	0.21	12.31	3.37
Year 4 Total	10.27	95.56	293.57	0.73	26.02	11.34
Year 5 (2025)						
On-Site	6.34	69.78	265.47	0.53	14.51	8.41
Off-Site	3.32	31.91	25.63	0.22	10.89	3.00
Year 5 Total	9.66	**101.69**	291.10	0.75	25.40	11.41
SCAQMD Construction Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Construction Thresholds?	No	**Yes**	No	No	No	No
Years 6 - 50 (2026+)						
On-Site	5.57	66.43	235.75	0.47	12.02	7.00
Off-Site	2.47	28.69	16.81	0.18	8.10	2.24
Years 6 - 50 Total	8.04	**95.12**	252.56	0.65	20.12	9.24
SCAQMD Operational Thresholds	**55**	**55**	**550**	**150**	**150**	**55**

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Exceeds Operational Thresholds?	No	**Yes**	No	No	No	No

Notes:
Bold and Underlined represent a significant impact
[1] Onsite emissions from equipment not operated on public roads.
[2] Offsite emissions from vehicles operating on public roads.
Source: CalEEMod Version 2016.3.1.

Table S – Alternative 4 Annual Regional Criteria Pollutant Emissions

Activity	Pollutant Emissions (Tons/year)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Year 1 (2021)						
On-Site[1]	0.39	1.71	14.87	0.03	1.29	0.73
Off-Site[2]	0.24	1.92	1.86	0.01	0.59	0.16
Year 1 Total	0.63	3.63	16.73	0.04	1.88	0.89
Year 2 (2022)						
On-Site	0.55	2.64	21.36	0.05	1.80	1.02
Off-Site	0.58	6.33	4.50	0.04	1.60	0.44
Total	1.13	8.97	25.86	0.08	3.40	1.46
Year 3 (2023)						
On-Site	0.58	4.11	22.76	0.05	1.99	1.13
Off-Site	0.19	1.99	1.50	0.01	0.58	0.16
Year 3 Total	0.77	6.09	24.26	0.06	2.58	1.29
Year 4 (2024)						
On-Site	0.46	3.58	18.21	0.04	1.51	0.86
Off-Site	0.33	2.14	2.57	0.02	1.00	0.27
Year 4 Total	0.78	5.72	20.79	0.05	2.51	1.13
Year 5 (2025)						
On-Site	0.45	3.54	17.93	0.04	1.57	0.89
Off-Site	0.26	2.19	1.98	0.02	0.83	0.01
Year 5 Total	0.71	5.73	19.91	0.05	2.39	0.90
Years 6 - 50 (2026+)						
On-Site	0.39	3.27	15.48	0.03	1.39	0.79
Off-Site	0.22	1.99	1.46	0.01	0.70	0.19
Years 6 - 50 Total	0.60	5.26	16.94	0.05	2.08	0.98
***De minimis level*[3]**	**10**	**10**	**100**	**100**	**100**	**100**
Significant?	No	No	No	No	No	No

Notes:
Bold and Underlined represent a significant impact
[1] Onsite emissions from equipment not operated on public roads.
[2] Offsite emissions from vehicles operating on public roads.
[3] General conformity *de minimis levels* https://www.epa.gov/general-conformity/de-minimis-emission-levels
Source: CalEEMod Version 2016.3.1.

Table R shows that with implementation of Environmental Commitments 1 and 2, that the VOC, CO, SO_2, PM10 and PM2.5 daily emissions for years 1 through 5 and NOx daily emissions for years 1 through 4 would be within the SCAQMD's construction thresholds. Table R also shows that VOC, CO, SO_2, PM10 and PM2.5 daily emissions for years 6 through 50 would be within the SCAQMD's operational thresholds. However Year 5 would still exceed SCAQMD's daily NOx construction thresholds and Years

6 through 50 would still exceed SCAQMD's NOx operational thresholds. Since no additional feasible environmental commitments is available to reduce NOx emissions to less than significant levels, implementation of Alternative 4 would result in a significant unavoidable regional air quality impact.

Table S shows that with implementation of Environmental Commitments 1 and 2 no General Conformity *de minimis* thresholds are exceeded for Alternative 4 and the preparation of a General Conformity Determination is not required for the implementation of Alternative 4.

Environmental Commitments

Environmental Commitment 1
The project applicant shall require that all off-road diesel-powered equipment that is greater than 50 horsepower and utilized during implementation of Alternative 2, 3, or 4, shall be registered with CARB and labelled detailing that the equipment meets Tier 4 Final emissions standards.

Environmental Commitment 2
The project applicant shall require that all haul trucks utilized during implementation of Alternative 2, 3, or 4, shall be licensed in California and shall meet the model year 2010 (Tier 4 Final) or newer emissions standards.

Level of Significance With Environmental Commitments

Less than significant impact for Alternative 3 and a significant unavoidable impact for Alternatives 2 and 4.

7.2 Local Air Quality Impacts

Since most of the proposed project's activities would occur greater than a quarter mile from sensitive receptors, the dispersion modeling has been limited to the SARM Upstream Focal Area from the River Road Bridge to the Sediment Trap. This area was chosen since it is the location where diesel equipment would operate in the closest proximity to residential uses that are located as near as 220 feet from the proposed diesel equipment operations.

The project-related localized criteria pollutant concentrations at the representative nearby sensitive receptors were analyzed according to the methodology described in *Final Localized Significance Threshold Methodology*, prepared by SCAQMD, July 2008. The report identified NOx, CO, PM10, and PM2.5 as the criteria pollutants of concern due to the attainment status and the potential health impacts caused from elevated local concentrations of these pollutants. Each of these criteria pollutants have been analyzed separately below.

Localized Nitrogen Dioxide Concentrations

The worst-case NO_2 concentrations from activities associated with Alternatives 2, 3, and 4 with implementation of Environmental Commitments 1 and 2 have been calculated through use of the AERMOD model and the input parameters detailed above in Section 4.3. The ambient NO_2 concentrations were obtained from the maximum concentrations over the last three years at the Mira Loma Station, that is detailed above in Table I. A summary of the NOx concentrations at the representative nearby sensitive receptors are shown in Table T and the AERMOD input and output files for the NO_2 concentrations are provided in Appendix J.

Table T – Localized NOx Concentrations at Nearby Sensitive Receptors

Sensitive Receptor[1]	1-Hour NO_2			Annual NO_2		
	Project Only (µg/m³)	Project Only[2] (ppb)	Project + Ambient[3] (ppb)	Project Only (µg/m³)	Project Only[2] (ppb)	Project + Ambient[4] (ppb)
1	14.5	26.2	94.3	0.18	0.32	13.32
2	14.7	26.6	94.7	0.18	0.32	13.32
3	15.0	27.1	95.2	0.18	0.32	13.32
4	14.9	27.0	95.1	0.16	0.29	13.29
5	14.8	26.8	94.9	0.15	0.28	13.28
6	14.4	26.0	94.1	0.14	0.25	13.25
7	15.2	27.5	95.6	0.14	0.26	13.26
8	17.5	31.7	99.8	0.20	0.36	13.36
9	13.2	23.9	92.0	0.23	0.41	13.41
10	12.8	23.2	91.3	0.20	0.36	13.36
11	12.3	22.3	90.4	0.16	0.30	13.30
12	12.8	23.1	91.2	0.16	0.28	13.28
13	12.4	22.4	90.5	0.12	0.22	13.22
14	16.7	30.2	98.3	0.24	0.44	13.44
15	12.9	23.3	91.4	0.08	0.14	13.14
16	12.0	21.6	89.7	0.09	0.15	13.15
17	13.8	25.0	93.1	0.16	0.30	13.30
Federal Standard			100			53
State Standard			180			30
SCAQMD Threshold of Significance			180			30

Notes: µg/m³ = micrograms per cubic meter; ppb = parts per billion
[1] Locations of Sensitive Receptors shown in Figure 3.
[2] A conversion factor of 1.808 was used to convert µg/m³ to ppb and is based on a standard temperature of 25 degrees centigrade and a standard atmosphere pressure of 760 millibars.
[3] The 1-hour NO_2 ambient level of 68.1 ppb is the maximum hourly volume from the last three years and was obtained from Table I.
[4] The annual NO_2 ambient level of 13.0 ppb is the maximum annual volume from the last three years and was obtained from Table I.
Source: Calculated from ISC-AERMOD View Version 9.5.0.

Table T shows that the calculated ambient plus project levels of NO_2 would be as high as 99.8 ppb for 1-hour NO_2 concentrations. This would be within the SCAQMD 1-hour threshold for NO_2 of 180 ppb and within both the Federal and State Standards of 100 ppb and 180 ppb, respectively. Table T also shows that the calculated ambient plus project levels of NO_2 would be as high as 13.44 ppb for annual NO_2 concentrations. This would be within the SCAQMD annual threshold for NO_2 of 30 ppb and within both the Federal and State Standards of 53 ppb and 30 ppb, respectively. Impacts would be less than significant.

Localized Carbon Monoxide Concentrations

The worst-case CO concentrations from activities associated with Alternatives 2, 3, and 4 with implementation of Environmental Commitments 1 and 2 have been calculated through use of the AERMOD model and the input parameters detailed above in Section 4.3. The ambient CO concentrations were obtained from year 2012 at the Mira Loma Station, which is the last year CO concentrations were

measured. A summary of the CO concentrations at representative nearby sensitive receptors are shown in Table U. The AERMOD input and output files for the CO calculations are provided in Appendix K.

Table U – Localized CO Concentrations at Nearby Sensitive Receptors

Sensitive Receptor[1]	1-Hour CO			8-Hour CO		
	Project Only (µg/m^3)	Project Only[2] (ppm)	Project + Ambient[3] (ppm)	Project Only (µg/m^3)	Project Only[2] (ppm)	Project + Ambient[4] (ppm)
1	103.59	0.09	2.39	0.94	0.001	1.95
2	105.44	0.10	2.40	1.03	0.001	1.95
3	107.84	0.10	2.40	1.06	0.001	1.95
4	107.78	0.10	2.40	1.20	0.001	1.95
5	107.31	0.10	2.40	1.25	0.001	1.95
6	104.53	0.10	2.40	1.17	0.001	1.95
7	109.37	0.10	2.40	1.23	0.001	1.95
8	134.49	0.12	2.42	0.48	0.000	1.95
9	94.87	0.09	2.39	0.36	0.000	1.95
10	92.13	0.08	2.38	0.40	0.000	1.95
11	90.56	0.08	2.38	0.56	0.001	1.95
12	93.16	0.08	2.38	0.59	0.001	1.95
13	89.12	0.08	2.38	0.63	0.001	1.95
14	120.37	0.11	2.41	0.62	0.001	1.95
15	93.86	0.09	2.39	0.66	0.001	1.95
16	86.12	0.08	2.38	0.66	0.001	1.95
17	99.26	0.09	2.39	0.68	0.001	1.95
Federal Standard			20			9
State Standard			20			9
SCAQMD Threshold of Significance			20			9

Notes: µg/m^3 = micrograms per cubic meter; ppb = parts per billion
[1] Locations of Sensitive Receptors shown in Figure 3.
[2] A conversion factor of 1,100 was used to convert µg/m^3 to ppm and is based on a standard temperature of 25 degrees centigrade and a standard
atmospheric pressure of 760 millibars.
[3] The 1-hour CO ambient level of 2.3 ppm is the maximum hourly volume from the year 2012 at the Mira Loma Station.
[4] The annual CO ambient level of 1.95 ppm is the maximum annual volume from the year 2012 at the Mira Loma Station.
Source: Calculated from ISC-AERMOD View Version 9.5.0.

Table U shows that the calculated ambient plus project levels of CO would be as high as 2.42 ppm averaged over 1 hour. This would be within the SCAQMD 1-hour threshold for CO of 20 ppm and within the Federal and State Standard of 20 ppm. Table U also shows that the calculated ambient plus project levels of CO would be as high as 1.95 ppm averaged over 8 hours. This would be within the SCAQMD 8-hour threshold for CO of 9 ppm and within the Federal and State Standard of 9 ppm. Impacts would be less than significant.

Localized Particulate Matter (PM10 and PM2.5) Concentrations

The worst-case PM10 and PM2.5 concentrations from activities associated with Alternatives 2, 3, and 4 with implementation of Environmental Commitments 1 and 2 have been calculated through use of the AERMOD model and the input parameters detailed above in Section 4.3. A summary of the PM10 and PM2.5 concentrations at representative nearby sensitive receptors are shown in Table V. The AERMOD input and output files for the PM10 calculations are provided in Appendix L and the PM2.5 calculations are provided in Appendix M.

Table V – Localized PM10 and PM2.5 Concentrations at Nearby Sensitive Receptors

	PM10		PM2.5
Sensitive Receptor[1]	**Project Only 24-Hour ($\mu g/m^3$)**	**Project Only Annual ($\mu g/m^3$)**	**Project Only 24-Hour ($\mu g/m^3$)**
1	0.67	0.076	0.38
2	0.68	0.076	0.39
3	0.71	0.077	0.41
4	0.69	0.070	0.40
5	0.69	0.066	0.39
6	0.65	0.059	0.37
7	0.67	0.061	0.38
8	0.63	0.086	0.36
9	0.45	0.098	0.26
10	0.44	0.085	0.25
11	0.41	0.070	0.24
12	0.40	0.067	0.23
13	0.30	0.052	0.17
14	0.53	0.105	0.30
15	0.43	0.034	0.24
16	0.41	0.037	0.24
17	0.56	0.070	0.32
SCAQMD Construction Threshold	10.4	1.0	10.4
SCAQMD Operational Threshold	2.5	1.0	2.5

Notes: $\mu g/m^3$ = micrograms per cubic meter
[1] Locations of Sensitive Receptors shown in Figure 3.
Source: Calculated from ISC-AERMOD View Version 9.5.0.

Table V shows that the calculated project levels of PM10 would be as high as 0.71 $\mu g/m^3$ for 24-hour PM10 and 0.11 $\mu g/m^3$ for annual PM10 concentrations. This would be within SCAQMD's PM10 24-hour average construction and operations-related increase thresholds of 10.4 $\mu g/m^3$ and 2.5 $\mu g/m^3$, respectively and would be within SCAQMD's PM10 annual average construction and operations-related increase threshold of 1.0 $\mu g/m^3$. Table V also shows that the calculated project levels of PM2.5 would be as high as 0.41 $\mu g/m^3$ for 24-hour PM2.5 concentrations. This would be within SCAQMD's PM2.5 24-hour average construction and operations-related increase thresholds of 10.4 $\mu g/m^3$ and 2.5 $\mu g/m^3$, respectively. Impacts would be less than significant.

Level of Significance

Less than significant impact.

7.3 Cancer Risk Impacts

The proposed project would utilize diesel-powered equipment, whose diesel particulate matter (DPM) emissions is a known source of TACs. Since most of the proposed project's activities would occur greater than a quarter mile from sensitive receptors, the dispersion modeling has been limited to the SARM Upstream Focal Area from the River Road Bridge to the Sediment Trap. This area was chosen since it is the location where diesel equipment would operate in the closest proximity to residential uses that are located as near as 220 feet from the proposed diesel equipment operations. The TAC impacts to the nearby sensitive receptors have been analyzed through use of the AERMOD model and the model input parameters detailed above in Section 5.2.

Health risks from TACs are twofold. First, TACs are carcinogens according to the State of California. Second, short-term acute and long-term chronic exposure to TACs can cause health effects to the respiratory system. Each of these health risks is discussed below.

Cancer Risks

According to the OEHHA Guidance, the cancer risk should be calculated using the following formula:

[Dose-inh (mg/(Kg-day)] * [Oral Slope Factor (kg-day)/mg]*[$1x10^6$] * Age Sensitivity Factor * Fraction of Time at Home = Potential Cancer Risk

Where:
Oral Slope Factor = 1.1
Age Sensitivity Factor = 10 for 3rd trimester to 2 years; 3 for 2 to 16 years; and 1 for 16 to 29.75 years
Fraction of Time at Home = 0.85 for 3rd trimester to 2 years; 0.72 for 2 to 16 years; and 0.73 for 16 to 70 years.

Dose-inh = (C_{air} * DBR * A * EF * ED * 10^6) / AT

Where:

C_{air}	[Concentration in air (µg/m^3)] = (Calculated by AERMOD Model)
DBR	[Daily breathing rate (L/kg body weight – day)] = 867 for 3rd trimester to 2 years; 572 for 2 to 16 years and 233 for 16 to 69.75 years.
A	[Inhalation absorption factor] = 1
EF	[Exposure frequency (days/year)] = 350
ED	[Exposure duration (years)] = 2.25 for 3rd trimester to 2 years; 14 for 2 to 16 years and 13.75 for 16 to 69.75 years
10^6	[Micrograms to milligrams conversion]
AT	[Average time period over which exposure is averaged in days] = 25,550

The OEHHA guidance recommends that Age Sensitivity Factors be utilized for residential receptors, which includes a 10-fold multiplier to infants (3rd trimester to age 2), a 3-fold increase in exposure for children (ages 2 to 16 years old), and an exposure factor of 1 for ages 16 and older. The OEHHA guidance also recommends separate breathing rates for each age group and the SCAQMD recommends utilizing the 90th percentile breathing rates for the 3rd trimester to 2 years and the 80th percentile breathing rates for all older persons. The 90th percentile breathing rates for 3rd trimester is 333 and for 0 to 2 years is 934. In order to simplify the analysis, the 3rd trimester and 0 to 2 year breathing rates were time-weighted averaged together, which resulted in a breathing rate of 867. The 80th percentile breathing rate for 2 to 16 years is 572 and for 16 to 30 years is 261.

The OEHHA guidance also recommends utilizing the Fraction of Time at Home in the calculation, since exposure to TAC emissions from the proposed project is not occurring when not at home. The OEHHA developed these calculations from analyzing over 175,000 trips in a survey and determined that only 0.68 percent of these trips overlap with the EF (days per year when residents are on vacation).

According to the above formula, the potential cancer risk for residential receptors equates to C_{air} * 250 for 3rd trimester to age 2, C_{air} * 261 for ages 2 to 16, and C_{air} * 39.5 for ages 16 to 29.75. Table W provides a summary of the calculated diesel emission concentrations at the nearest sensitive receptors and Appendices N and O provides the AERMOD printouts.

Table W – TAC Cancer Risks at Nearby Sensitive Receptors

Sensitive Receptor	Receptor Description[1]	Receptor Location		Annual PM10 Concentration (µg/m³)			Cancer Risk Per Million People[2]
		X	Y	2021-2022	2023-2037	2038-2051	
1	SFH to northwest	445,087	3,754,800	0.0016	0.0016	0.0016	0.89
2	SFH to northwest	445,030	3,754,728	0.0016	0.0017	0.0017	0.89
3	SFH to northwest	444,990	3,754,679	0.0016	0.0017	0.0017	0.90
4	SFH to northwest	444,930	3,754,613	0.0015	0.0015	0.0015	0.82
5	SFH to west	444,877	3,754,543	0.0014	0.0014	0.0014	0.77
6	SFH to west	444,815	3,754,470	0.0012	0.0013	0.0013	0.69
7	SFH to west	444,772	3,754,356	0.0013	0.0013	0.0013	0.72
8	SFH to south	445,377	3,753,743	0.0018	0.0019	0.0019	1.01
9	SFH to southeast	445,621	3,753,969	0.0021	0.0021	0.0021	1.15
10	SFH to southeast	445,718	3,754,072	0.0018	0.0018	0.0018	0.99
11	SFH to southeast	445,850	3,754,156	0.0015	0.0015	0.0015	0.82
12	SFH to southeast	445,961	3,754,222	0.0014	0.0015	0.0015	0.79
13	SFH to southeast	446,113	3,754,259	0.0011	0.0011	0.0011	0.61
14	SFH to east	446,337	3,754,773	0.0022	0.0023	0.0023	1.23
15	SFH to north	445,368	3,755,444	0.0007	0.0007	0.0007	0.40
16	SFH to north	445,315	3,755,366	0.0008	0.0008	0.0008	0.43
17	SFH to north	445,275	3,755,078	0.0015	0.0015	0.0015	0.83
						Threshold of Significance	**10**
						Exceed Threshold?	**No**

Notes:
[1] SFH = Single-Family Home.
[2] The residential cancer risk based on: C_{air} (2021-2022) * 250 + C_{air} (2023-2037) * 261 + C_{air} (2038-2051) *39.5.
Source: Calculated from ISC-AERMOD View Version 9.5.0.

Table W shows that the cancer risk from the proposed project's TAC emissions would be as high as 1.15 per million persons at the most impacted homes. The project-related cancer risk from TAC emissions would be within the SCAQMD's threshold of 10 per million. Impacts would be less than significant.

Non-Cancer Risks

In addition to the cancer risk from exposure to TAC emissions there is also the potential TAC exposure may result in adverse health impacts from acute and chronic illnesses, which are detailed below.

Chronic Health Impacts

Chronic health effects are characterized by prolonged or repeated exposure to a TAC over many days, months, or years. Symptoms from chronic health impacts may not be immediately apparent and are often irreversible. The chronic hazard index is based on the most impacted sensitive receptor from the

proposed project and is calculated from the annual average concentrations of PM10. The relationship for non-cancer chronic health effects is given by the equation:

$$HI_{DPM} = C_{DPM} / REL_{DPM}$$

Where,

HI_{DPM} = Hazard Index; an expression of the potential for non-cancer health effects.

C_{DPM} = Annual average diesel particulate matter concentration in $\mu g/m^3$.

REL_{DPM}= Reference Exposure Level (REL) for diesel particulate matter; the diesel particulate matter concentration at which no adverse health effects are anticipated.

The REL_{DPM} is 5 $\mu g/m^3$. The Office of Environmental Health Hazard Assessment as protective for the respiratory system has established this concentration. As shown above in Table W, the AERMOD model found that the highest annual off-site concentration is 0.0018 $\mu g/m^3$ for DPM equivalent chronic non-cancer risk emissions. The resulting Hazard Index is:

$$HI_{DPM} = 0.0023 / 5 = 0.00046$$

The criterion for significance is a Chronic Hazard Index increase of 1.0 or greater, which is detailed above in Section 6.3. Therefore, the on-going operations of the proposed project would result in a less than significant impact due to the non-cancer chronic health risk from TAC emissions created by the proposed project.

Acute Health Impacts

Acute health effects are characterized by sudden and severe exposure and rapid absorption of a TAC. Normally, a single large exposure is involved. Acute health effects are often treatable and reversible. The acute hazard index is calculated from the maximum 24-hour concentrations of PM10 at the point of maximum impact (PMI), which has been calculated with the AERMOD model and the parameters detailed above in Section 4.0. The relationship for non-cancer acute health effects is given by the equation:

$$AHI = C / AREL$$

Where,

AHI = Acute Hazard Index; an expression of the potential for non-cancer health effects.

C = Maximum hourly concentration of either PM10 in $\mu g/m^3$.

AREL = Acute Reference Exposure Level.

No acute risk has been found to be directly created from DPM, so there is no AREL assigned to DPM, however in order to provide an DPM equivalent AREL, the ARELs from all of the other TACs that are emitted in diesel exhaust were added together based on their diesel weighting shown above in Table D. This resulted in a diesel emission weighted equivalent AREL of 2,189 $\mu g/m^3$. The AERMOD model found that the highest 24-hour concentration at the PMI is 0.015 $\mu g/m^3$ for DPM equivalent acute non-cancer risk emissions and Appendix N provides the DPM equivalent emission concentration calculation printouts from the AERMOD model. The resulting Hazard Index is:

$$AHI = 0.015 / 2{,}189 = 0.0000068$$

The criterion for significance is an Acute Hazard Index increase of 1.0 or greater, which is detailed above in Section 6.3. Therefore, the on-going operations of the proposed project would result in a less than significant impact due to the non-cancer acute health risk from TAC emissions created by the proposed project.

Level of Significance

Less than significant impact.

7.4 Odors Impacts

Individual responses to odors are highly variable and can result in a variety of effects. Generally, the impact of an odor results from a variety of factors such as frequency, duration, offensiveness, location, and sensory perception. The frequency is a measure of how often an individual is exposed to an odor in the ambient environment. The intensity refers to an individual's or group's perception of the odor strength or concentration. The duration of an odor refers to the elapsed time over which an odor is experienced. The offensiveness of the odor is the subjective rating of the pleasantness or unpleasantness of an odor. The location accounts for the type of area in which a potentially affected person lives, works, or visits; the type of activity in which he or she is engaged; and the sensitivity of the impacted receptor.

Sensory perception has four major components: detectability, intensity, character, and hedonic tone. The detection (or threshold) of an odor is based on a panel of responses to the odor. There are two types of thresholds: the odor detection threshold and the recognition threshold. The detection threshold is the lowest concentration of an odor that will elicit a response in a percentage of the people that live and work in the immediate vicinity of the project site and is typically presented as the mean (or 50 percent of the population). The recognition threshold is the minimum concentration that is recognized as having a characteristic odor quality, this is typically represented by recognition by 50 percent of the population. The intensity refers to the perceived strength of the odor. The odor character is what the substance smells like. The hedonic tone is a judgment of the pleasantness or unpleasantness of the odor. The hedonic tone varies in subjective experience, frequency, odor character, odor intensity, and duration.

Potential sources that may emit odors during implementation of the proposed project may include odor emissions from diesel equipment and disturbance of organic material. The diesel equipment is anticipated to operate as near as 220 feet from the nearest homes, however the majority of diesel equipment would operate at locations that are greater than a quarter mile from the nearest homes. The diesel equipment utilized onsite would be constantly moving around the project site and would spend very brief durations in close proximity to the nearby homes. The odors from diesel equipment emissions would be temporary at any one location and would not likely be noticeable for extended periods of time at any of the nearby homes.

The potential odor impacts associated with excavation activities would be caused by release of material that contain even small amounts of sulfur or organic material. Sulfur compounds have very low odor threshold levels. For instance hydrogen sulfide can be detected by humans at concentrations from 0.5 parts per billion (ppb) that is noticeable by 2 percent of the population, to 40 ppb that is qualified as annoying by 50 percent of the population. It should be noted that the project site has been utilized as a detention basin since the 1940's and vegetation has been removed from the Prado Basin on regular intervals with no records of odor complaints from the nearby residents. Since most of the vegetation removal would occur greater than a quarter mile from the near homes and no odor complaints have previously been recorded, the vegetation removal activities are not anticipated to create odor impacts at the nearby homes. Furthermore, soil in the project vicinity is not known to contain high levels of sulfur so odor impacts from sulfur in the soil is unlikely to occur. Therefore, a less than significant odor impact is anticipated to occur from implementation of Alternatives 2, 3, and 4.

Level of Significance

Less than significant impact.

7.5 Generation of Greenhouse Gas Emissions

The CalEEMod model was utilized to calculate the GHG emissions from each Alternative associated with the proposed project and the input parameters utilized in this analysis have been detailed in Section 5.1. Each of the Alternatives is analyzed separately below. It should be noted that Environmental Commitments 1 and 2 that require the use of equipment and trucks that meet the Tier 4 Final emissions standards only provide negligible reductions to GHG emissions and therefore the with environmental commitments conditions have not be analyzed below.

Alternative 2 (Plan 11 Proposed Alternative) Greenhouse Gas Emissions

A summary of the Alternative 2 GHG emissions results is shown below in Table X.

Table X – Alternative 2 Greenhouse Gas Annual Emissions

	Greenhouse Gas Emissions (Metric Tons per Year)			
Year	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Year 1 (2021)				
On-Site	2,771.57	0.90	0.00	2,793.98
Off-Site	1,160.97	0.07	0.00	1,162.62
Year 1 Total	**3,932.54**	**0.97**	**0.00**	**3,956.60**
Year 2 (2022)				
On-Site	4,028.78	1.29	0.00	4,061.05
Off-Site	3,019.19	0.22	0.00	3,023.29
Year 2 Total	**7,047.98**	**1.51**	**0.00**	**7,084.34**
Year 3 (2023)				
On-Site	4,515.52	1.38	0.00	4,677.92
Off-Site	1,304.82	0.08	0.00	1,306.73
Year 3 Total	**5,820.34**	**1.46**	**0.00**	**5,984.65**
Year 4 (2024)				
On-Site	3,578.25	1.08	0.00	3,604.21
Off-Site	1,745.29	0.09	0.00	1,747.56
Year 4 Total	**5,323.54**	**1.17**	**0.00**	**5,351.76**
Year 5 (2025)				
On-Site	3,510.85	1.06	0.00	3,537.09
Off-Site	1,661.26	0.09	0.00	1,663.59
Year 5 Total	**5,172.11**	**1.15**	**0.00**	**5,200.68**
Amortized Years 1-5 Construction Emissions (30 years)[1]	**909.88**	**0.21**	**0.00**	**919.27**
Operational Years 6 - 50 (2026+)				
On-Site	3,054.64	0.91	0.00	3,077.33
Off-Site	1,484.44	0.09	0.00	1,486.59
Years 6 - 50 Total	**4,539.07**	**1.00**	**0.00**	**4,563.92**
Total Annual Emissions (Construction & Operations)	**5,448.95**	**1.21**	**0.00**	**5,483.18**
SCAQMD Draft Threshold of Significance				**3,000**

Notes:
[1] Construction emissions amortized over 30 years as recommended in the SCAQMD GHG Working Group on November 19, 2009.
Source: CalEEMod.

The data provided in Table X above shows that Alternative 2 would create 5,483.18 $MTCO_2e$ per year. According to the SCAQMD draft threshold of significance detailed above in Section 6.5, a cumulative

global climate change impact would occur if the GHG emissions created from the proposed project would exceed 3,000 $MTCO_2e$ per year. This would be considered a significant impact.

No environmental commitments are available that would reduce GHG emissions to less than significant levels. Therefore, implementation of Alternative 2 would result in a significant unavoidable cumulative GHG emissions impact.

Alternative 3 (Plan 9) Greenhouse Gas Emissions

A summary of the Alternative 3 GHG emissions results is shown below in Table Y.

Table Y – Alternative 3 Greenhouse Gas Annual Emissions

	Greenhouse Gas Emissions (Metric Tons per Year)			
Year	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Year 1 (2021)				
On-Site	802.62	0.26	0.00	809.11
Off-Site	578.86	0.02	0.00	579.44
Year 1 Total	**1,381.48**	**0.28**	**0.00**	**1,388.55**
Year 2 (2022)				
On-Site	722.31	0.23	0.00	728.15
Off-Site	849.76	0.04	0.00	850.53
Year 2 Total	**1,572.07**	**0.27**	**0.00**	**1,578.67**
Year 3 (2023)				
On-Site	844.03	0.27	0.00	894.15
Off-Site	1,220.85	0.05	0.00	1,222.11
Year 3 Total	**2,064.88**	**0.32**	**0.00**	**2,116.25**
Year 4 (2024)				
On-Site	537.37	0.17	0.00	541.69
Off-Site	863.31	0.03	0.00	864.03
Year 4 Total	**1,400.68**	**0.20**	**0.00**	**1,405.72**
Year 5 (2025)				
On-Site	617.53	0.20	0.00	622.51
Off-Site	783.51	0.03	0.00	784.31
Year 5 Total	**1,401.04**	**0.23**	**0.00**	**1,406.83**
Amortized Years 1-5 Construction Emissions (30 years)[1]	**260.67**	**0.04**	**0.00**	**263.20**
Operational Years 6 - 50 (2026+)				
On-Site	169.38	0.05	0.00	170.75
Off-Site	605.81	0.03	0.00	606.45
Years 6 - 50 Total	**775.19**	**0.08**	**0.00**	**777.20**
Total Annual Emissions (Construction & Operations)	**1,035.86**	**0.12**	**0.00**	**1,040.40**
SCAQMD Draft Threshold of Significance				**3,000**

Notes:
[1] Construction emissions amortized over 30 years as recommended in the SCAQMD GHG Working Group on November 19, 2009.
Source: CalEEMod.

The data provided in Table Y above shows that Alternative 3 would create 1,040.40 $MTCO_2e$ per year. According to the SCAQMD draft threshold of significance detailed above in Section 6.5, a cumulative global climate change impact would occur if the GHG emissions created from the proposed project would exceed 3,000 $MTCO_2e$ per year. Therefore, implementation of Alternative 3 would result in a less than significant cumulative GHG emissions impact.

Alternative 4 (Plan 14) Greenhouse Gas Emissions

A summary of the Alternative 4 GHG emissions results is shown below in Table Z.

Table Z – Alternative 4 Greenhouse Gas Annual Emissions

	Greenhouse Gas Emissions (Metric Tons per Year)			
Year	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Year 1 (2021)				
On-Site	2,852.49	0.92	0.00	2,875.56
Off-Site	1,171.50	0.07	0.00	1,173.17
Year 1 Total	**4,024.00**	**0.99**	**0.00**	**4,048.73**
Year 2 (2022)				
On-Site	4,374.26	1.36	0.00	4,408.32
Off-Site	3,845.21	0.32	0.00	3,851.13
Year 2 Total	**8,219.47**	**1.68**	**0.00**	**8,259.45**
Year 3 (2023)				
On-Site	4,605.11	1.41	0.00	4,768.68
Off-Site	1,345.33	0.08	0.00	1,347.31
Year 3 Total	**5,950.44**	**1.49**	**0.00**	**6,115.99**
Year 4 (2024)				
On-Site	3,667.87	1.11	0.00	3,694.55
Off-Site	1,752.50	0.09	0.00	1,754.78
Year 4 Total	**5,420.37**	**1.20**	**0.00**	**5,449.33**
Year 5 (2025)				
On-Site	3,600.34	1.08	0.00	3,627.30
Off-Site	1,668.30	0.09	0.00	1,670.64
Year 5 Total	**5,268.64**	**1.18**	**0.00**	**5,297.94**
Amortized Years 1-5 Construction Emissions (30 years)[1]	**962.76**	**0.22**	**0.00**	**972.38**
Operational Years 6 - 50 (2026+)				
On-Site	3,099.29	0.92	0.00	3,122.34
Off-Site	1,507.92	0.09	0.00	1,510.11
Years 6 - 50 Total	**4,607.21**	**1.01**	**0.00**	**4,632.45**
Total Annual Emissions (Construction & Operations)	**5,569.97**	**1.23**	**0.00**	**5,604.84**
SCAQMD Draft Threshold of Significance				**3,000**

Notes:
[1] Construction emissions amortized over 30 years as recommended in the SCAQMD GHG Working Group on November 19, 2009.
Source: CalEEMod.

The data provided in Table Z above shows that Alternative 4 would create 5,604.84 $MTCO_2e$ per year. According to the SCAQMD draft threshold of significance detailed above in Section 6.5, a cumulative global climate change impact would occur if the GHG emissions created from the proposed project would exceed 3,000 $MTCO_2e$ per year. This would be considered a significant impact.

No environmental commitments are available that would reduce GHG emissions to less than significant levels. Therefore, implementation of Alternative 4 would result in a significant unavoidable cumulative GHG emissions impact.

Environmental Commitments

No environmental commitments are available.

Level of Significance With Environmental Commitments

Significant unavoidable impact for Alternatives 2 and 4.

7.6 Greenhouse Gas Plan Consistency

The proposed project would conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing GHG emissions. The proposed project would consist of a combination of water conservation, sediment management, and ecosystem restoration measures at three Focal Areas within the Prado Basin, on one Focal Area along the Santa Ana River Lower Downstream (Reach 9) and sediment removal maintenance activities at the Santa Ana River Ocean Outlet Reach. Although the proposed project will utilize diesel equipment and trucks that emit GHG emissions, the proposed project would also reduce GHG emission through increasing water storage capacity within the Prado Basin that will increase the amount of local water supplies that can be stored in the local aquifer that will reduce the amount of water imported to Orange County. The proposed project would also increase the long-term carbon storage capacity of the Prado Basin through the development of channels to increase the acreage of native wetland vegetation.

The proposed project is located within Southern California and the applicable GHG reduction plans for the region are provided by SCAG and SCAQMD, which are discussed separately below.

SCAG

SCAG prepared the *2016-2040 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS), adopted April, 2016. The RTP/SCS is a regional growth management strategy that incorporates local land use projection and circulation networks in the cities and counties general plans. The RTP/SCS was developed in order to meet the requirements of SB 375, which requires Metropolitan Planning Organizations (MPO) to prepare a Sustainable Communities Strategy (SCS) that demonstrates how the region will meet its GHG reduction targets as set forth by CARB. Pursuant to SB 375, CARB set the per capita GHG emission reduction targets from passenger vehicles at 8 percent below 2005 per capita emissions levels by 2020 and 13 percent below 2005 per capita emission levels by 2035. SB 375 also requires that the SCS must (1) identify the general location of uses, residential densities, and building intensities within the region; (2) identify areas within the region sufficient to house all the population of the region over the course of the RTP planning period; (3) identify areas within the region sufficient to house an eight-year projection of the regional housing need for the region; (4) identify a transportation network to service the transportation needs of the region; (5) gather information on the resource areas and farmland in the regions; (6) consider the statutory housing goals; (7) set forth a forecasted development pattern for the region which when integrated with the transportation network, and other transportation measures and policies, will reduce GHG emissions from autos and light trucks to achieve the GHG reduction targets; and (8) allow the RTP to comply with the air quality conformity requirements under the federal Clean Air Act.

The RTP/SCS contains a variety of goals to reduce the region's GHG emissions. Table AA lists the sustainability goals provided in the RTP/SCS and details how the proposed project is consistent with these goals. As detailed in Table AA, the proposed project is consistent with the RTP/SCS sustainability goals.

Table AA – SCAG RTP/SCS Goals and Project Consistency

Sustainability Goals	Project Consistency
Goal 1: Align the plan investments and policies with improving regional economic development and competiveness	**Not Applicable**. The goal is applicable to SCAG's implementation of the RTP/SCS.
Goal 2: Maximize mobility and accessibility for all people and goods in the region.	**Consistent**. The proposed project would include development of multi-purpose trails in order to provide accessibility for multiple modes of travel.
Goal 3: Ensure travel safety and reliability for all people and goods in the region.	**Not Applicable.** The goal is applicable to Caltrans and the several county transportation departments in the region.
Goal 4: Preserve and ensure a sustainable regional transportation system.	**Not Applicable.** The goal is applicable to Caltrans and the several county transportation departments in the region.
Goal 5: Maximize productivity of our transportation system.	**Not Applicable**. The goal is applicable to Caltrans and the several county transportation departments in the region.
Goal 6: Protect the environment and health of our residents by improving air quality and encouraging active transportation (non-motorized transportation, such as bicycling and walking).	**Consistent**. The proposed project would protect the native environment through removal of non-native flora and fauna and promote the expansion of native wetlands through construction of channels to irrigate additional land. The proposed project would also develop multi-purpose trails that would encourage active transportation.
Goal 7: Actively encourage and create incentives for energy efficiency, where possible.	**Consistent.** The proposed project includes implementation of Environmental Commitments 1 and 2 that require the use of equipment and trucks that meet Tier 4 Final emission standards and as a result of these standards are more energy efficient than other equipment and trucks.
Goal 8: Encourage land use and growth patterns that facilitate transit and non-motorized transportation.	**Consistent.** The proposed project includes improvements to open space areas that are surrounded by existing development and includes development of multi-purpose trails within the open space areas.
Goal 9: Maximize the security of the regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.	**Not Applicable.** The goal is applicable to Caltrans, the several county transportation departments, the California Highway Patrol and other law enforcement agencies in the region.

Source: Southern California Association of Governments, 2016.

SCAQMD

To identify significance criteria under CEQA for development projects, SCAQMD initiated a Working Group, which provided detailed methodology for evaluating significance under CEQA. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that provides a quantitative annual threshold of 3,000 $MTCO_2e$ for all land use types. Although the SCAQMD provided substantial evidence supporting the use of the above thresholds, they have not been formally adopted because the SCAQMD is awaiting the outcome of the pending appeal of the *California Building Industry Association v. Bay Area Air Quality Management District* (BAAQMD), is resolved. Therefore, this analysis has utilized the annual threshold of 3,000 $MTCO_2e$ for all land use types.

Section 7.5 found that Alternative 2 would generate 5,483.18 $MTCO_2e$ per year, Alternative 3 would generate 1,040.40 $MTCO_2e$ per year, and Alternative 4 would generate 5,604.84 $MTCO_2e$ per year. Alternatives 2 and 4 would exceed the annual 3,000 $MTCO_2e$ threshold. The GHG emissions would be primarily created from emissions associated with off-road equipment and on-road haul trucks.

Implementation of the proposed project would reduce GHG emissions by increasing water storage capacity within the Prado Basin that will increase the amount of local water supplies that can be stored in the local aquifer that will reduce the amount of water imported to Orange County. The proposed project would also increase the long-term carbon storage capacity of the Prado Basin through the development of channels to increase the acreage of native wetland vegetation. However, the GHG emission reductions achieved by implementation of the proposed project would be nominal when compared to the GHG emissions created by the proposed project. As such, in order to implement projects of the size of Alternatives 2 and 4, there are no feasible environmental commitments available to a local jurisdiction that could be incorporated to reduce the GHG emission levels from the on-going operations of the proposed Project to a less than significant level.

Therefore, implementation of Alternatives 2 and 4 would result in a conflict with the SCAQMD adopted threshold of 3,000 $MTCO_2e$ and would conflict with an applicable plan adopted for the purpose of reducing the emissions of greenhouse gases.

Environmental Commitments

No environmental commitments are available.

Level of Significance With Environmental Commitments

Significant unavoidable impact for Alternatives 2 and 4.

7.7 Air Quality Compliance

The proposed project may conflict with or obstruct implementation of the SCAQMD Air Quality Management Plan (AQMP). The following section discusses the proposed project's consistency with the SCAQMD AQMP.

SCAQMD Air Quality Management Plan

The California Environmental Quality Act (CEQA) requires a discussion of any inconsistencies between a proposed project and applicable GPs and regional plans (CEQA Guidelines Section 15125). The regional plan that applies to the proposed project includes the SCAQMD AQMP. Therefore, this section discusses any potential inconsistencies of the proposed project with the AQMP.

The purpose of this discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the proposed project would interfere with the region's ability to comply with Federal and State air quality standards. If the decision-makers determine that the proposed project is inconsistent, the lead agency may consider project modifications or inclusion of environmental commitments to eliminate the inconsistency.

The SCAQMD CEQA Handbook states that "New or amended GP Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP." Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The SCAQMD CEQA Handbook identifies two key indicators of consistency:

(1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.

(2) Whether the project will exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

Criterion 1 - Increase in the Frequency or Severity of Violations?

Based on the air quality modeling analysis contained above in Section 7.1 of this report, regional air emissions would result in significant NOx, PM10, and PM2.5 impacts based on SCAQMD regional thresholds of significance discussed above in Section 6.1. Environmental Commitments 1 and 2 have been provided that would reduce PM10 and PM2.5 emissions impacts to less than significant levels. Environmental Commitments 1 and 2 would also reduce NOx emissions, however Alternatives 2 and 4 would still exceed SCAQMD's construction and operational thresholds. Since no additional feasible environmental commitments are available to reduce NOx emissions to less than significant levels, implementation of Alternatives 2 and 4 would have the potential to result in increasing the frequency or severity of air quality violations within the Air Basin.

Therefore, based on the information provided above, Alternative 3 would be consistent with the first criterion and Alternatives 2 and 4 would be inconsistent with the first criterion.

Criterion 2 - Exceed Assumptions in the AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the proposed project with the assumptions in the AQMP. The emphasis of this criterion is to insure that the analyses conducted for the proposed project are based on the same forecasts as the AQMP. The AQMP is developed through use of the planning forecasts provided in the RTP/SCS and FTIP. The RTP/SCS is a major planning document for the regional transportation and land use network within Southern California. The RTP/SCS is a long-range plan that is required by federal and state requirements placed on SCAG and is updated every four years. The FTIP provides long-range planning for future transportation improvement projects that are constructed with state and/or federal funds within Southern California. Local governments are required to use these plans as the basis of their plans for the purpose of consistency with applicable regional plans under CEQA. For this project, the Cities of Chino, Corona, Norco, Costa Mesa, and Fountain Valley and the Counties of Riverside and Orange Land Use Plans define the assumptions that are represented in the AQMP for the project study areas.

All of the proposed activities are located within area designated as Open Space. Since, water conservation, sediment management, and ecosystem restoration measures are allowed uses within lands designated as Open Space, the proposed project is consistent with the current land use designations and would not require a General Plan Amendment or zone change. As such, the proposed project is not anticipated to exceed the AQMP assumptions for the project sites and is found to be consistent with the AQMP for the second criterion.

Based on the above, with implementation of Environmental Commitments 1 and 2 Alternative 3 would be consistent with the SCAQMD AQMP and Alternatives 2 and 4 would result in an inconsistency with the SCAQMD AQMP. Therefore, Alternatives 2 and 4 would result in a significant unavoidable impact in relation to implementation of the AQMP.

Environmental Commitments

Environmental Commitment 1
The project applicant shall require that all off-road diesel-powered equipment that is greater than 50 horsepower and utilized during implementation of Alternative 2, 3, or 4, shall be registered with CARB and labelled detailing that the equipment meets Tier 4 Final emissions standards.

Environmental Commitment 2
The project applicant shall require that all haul trucks utilized during implementation of Alternative 2, 3, or 4, shall be licensed in California and shall meet the model year 2010 (Tier 4 Final) or newer emissions standards.

Level of Significance With Environmental Commitments

Less than significant impact for Alternative 3 and a significant unavoidable impact for Alternatives 2 and 4.

7.8 Cumulative Net Increase in Non-Attainment Pollution

The proposed project may result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

Cumulative projects include local development as well as general growth within the project area. However, as with most development, the greatest source of emissions is from mobile sources, which travel throughout the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered would cover an even larger area. Accordingly, the cumulative analysis for the project's air quality must be generic by nature. The project area is out of attainment for ozone and PM10 and PM2.5 particulate matter. In accordance with CEQA Guidelines Section 15130(b), this analysis of cumulative impacts incorporates a three-tiered approach to assess cumulative air quality impacts.

- Consistency with the SCAQMD project specific thresholds for construction and operations;
- Project consistency with existing air quality plans; and
- Assessment of the cumulative health effects of the pollutants.

Consistency with Project Specific Thresholds

The project site is located in the South Coast Air Basin, which is currently designated by the EPA as a non-attainment area for ozone and PM2.5 and designated by CARB as a non-attainment area for ozone, PM10, and PM2.5. The regional ozone, PM10, and PM2.5 emissions associated with the proposed project have been calculated above in Section 7.1. The above analysis found that significant NOx (ozone precursor) regional emission impacts would occur from implementation of the proposed project. Environmental Commitments 1 and 2 would reduce Alternative 3 to less than significant levels, but Alternatives 2 and 4 would still exceed the SCAQMD's regional NOx emissions thresholds. Therefore, a significant unavoidable cumulative impact to the Air Basin would occur from implementation of Alternatives 2 and 4 due to the proposed project's NOx emissions.

Consistency with Air Quality Plans

As detailed above in Section 7.7, in order for a project to be consistent with the SCAQMP AQMP, the project would have to demonstrate that it furthers one or more policies in the AQMP and does not

obstruct other policies in the AQMP. The SCAQMD CEQA Handbook provides two key indicators for consistency: (1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP; and (2) Whether the project will exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

Section 7.7 above details that with implementation of Environmental Commitments 1 and 2, Alternative 3 would be consistent Criterion 1, however Alternatives 2 and 4 would result in an inconsistency with Criterion 1. Section 7.7 above also details that all Alternatives would be consistent with Criterion 2, since all of the proposed actions are located within area designated as Open Space. Since, water conservation, sediment management, and ecosystem restoration measures are allowed uses within lands designated as Open Space, the proposed project is consistent with the current land use designations and would not require a General Plan Amendment or zone change.

Based on the above, with implementation of Environmental Commitments 1 and 2 Alternative 3 would be consistent with the SCAQMD AQMP and Alternatives 2 and 4 would result in an inconsistency with the SCAQMD AQMP. Therefore, Alternatives 2 and 4 would result in a significant unavoidable impact in relation to implementation of the AQMP.

Cumulative Health Impacts

The Air Basin is designated as nonattainment for ozone, PM10, and PM2.5, which means that the background levels of those pollutants are at times higher than the ambient air quality standards. The air quality standards were set to protect public health, including the health of sensitive individuals (elderly, children, and the sick). Therefore, when the concentrations of those pollutants exceeds the standard, it is likely that some sensitive individuals in the population would experience health effects. The local analysis detailed above in Section 7.2 found that the all Alternatives would not exceed the SCAQMD local significance thresholds for NOx (ozone precursor), PM10 and PM2.5. As such, the proposed project would result in a less than significant cumulative health impact.

Based on the above, with implementation of Environmental Commitments 1 and 2, Alternative 3 would not result in cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard, however Alternatives 2 and 4 would result in a cumulative considerable net increase of NOx, which is designated as non-attainment for the Air Basin. Therefore, Alternatives 2 and 4 would result in a significant unavoidable cumulative impact in relation to a cumulative net increase from non-attainment pollutants.

Environmental Commitments

Environmental Commitment 1

The project applicant shall require that all off-road diesel-powered equipment that is greater than 50 horsepower and utilized during implementation of Alternative 2, 3, or 4, shall be registered with CARB and labelled detailing that the equipment meets Tier 4 Final emissions standards.

Environmental Commitment 2

The project applicant shall require that all haul trucks utilized during implementation of Alternative 2, 3, or 4, shall be licensed in California and shall meet the model year 2010 (Tier 4 Final) or newer emissions standards.

Level of Significance With Environmental Commitments

Less than significant impact for Alternative 3 and a significant unavoidable impact for Alternatives 2 and 4.

8.0 REFERENCES

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APPENDIX A

CalEEMod Model Off-Road Equipment Printouts

APPENDIX B

Alternative 2 Off-Road Equipment Emissions Calculations

APPENDIX C

Alternative 3 Off-Road Equipment Emissions Calculations

APPENDIX D

Alternative 4 Off-Road Equipment Emissions Calculations

APPENDIX E

EMFAC2014 Haul Truck Emissions Printouts

APPENDIX F

CalEEMod Model Haul Truck Printouts

APPENDIX G

Worker and Haul Truck Trips Emissions Calculations

APPENDIX H

AERMOD Model NO_2 Printouts

APPENDIX I

AERMOD Model CO Printouts

APPENDIX J

AERMOD Model PM10 Printouts

APPENDIX K

AERMOD Model PM2.5 Printouts

APPENDIX L

AERMOD Model Years 2021-2022 PM10 Exhaust Printouts

APPENDIX M

AERMOD Model Years 2023-2051 PM10 Exhaust Printouts